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Parts I and II
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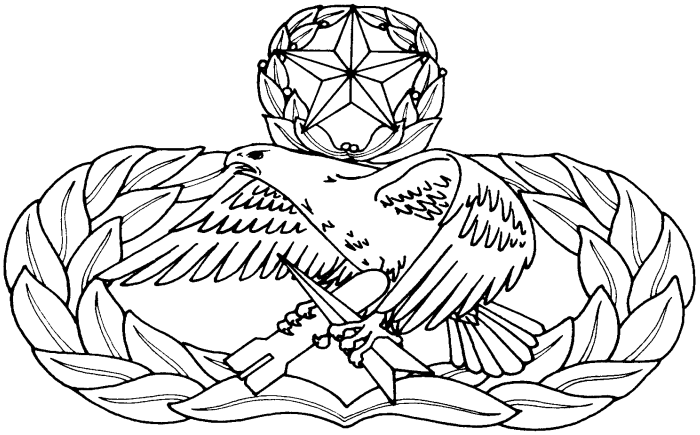
AFSC 2E0X1

GROUND RADAR SYSTEMS



CAREER FIELD EDUCATION AND TRAINING PLAN

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GROUND RADAR SYSTEMS
AFSC 2E0X1
CAREER FIELD EDUCATION AND TRAINING PLAN

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PART I

Preface

1. Resource constraints in the Air Force are impacting the availability of our most valuable resource--people. This condition, which will continue to exist in the future, makes it essential for the work force to be effectively and efficiently trained to perform duties within each skill level of an Air Force Specialty (AFS). To meet the challenges of tomorrow the Air Force must place a greater emphasis on career field training. This Career Field Education and Training Plan (CFETP) is a management tool that enables the Air Force and each MAJCOM to place the needed emphasis on total career field training. It provides the framework and guidance necessary to plan and develop a career field training program. The plan, which is a "training road map" for the career field, identifies mandatory and optional training requirements. It includes initial skills, upgrade, and continuation training that individuals should receive during their career in this specialty.

2. The CFETP, which documents the career field training program, consists of two parts. Management uses both parts to plan, manage, and control training within the career field.

2.1. Part I, Section A, provides the information necessary for overall management of training in the career field. It contains administrative details and explains the purpose and use of the CFETP. Section B provides a description of the specialty, suggests career field progression, provides career field information, documents training decisions, defines each skill level, and identifies MAJCOM continuation training options. Section C specifies qualification requirements for upgrade/progression in each subsequent skill level in the career field. It also identifies sources of training other than those provided by the Air Education and Training Command (AETC). Section D identifies known resource constraints.

2.2. Part II, Section A identifies the Specialty Training Standard (STS) and includes duties, tasks, technical references, Air Education and Training Command (AETC) conducted training, core tasks, and correspondence course requirements. Section B contains the course objective list/training standard supervisors use to determine if airmen satisfied training requirements. Section C contains support material relevant across the specialty including Air Force Job Qualification Standards/Air Force Qualification Training Packages (AFJQS/AFQTP). Section D lists all mandatory Air Force in-residence, field, Air University Education, Logistics and Communications (A4/6), and exportable courses used to support training for this specialty. Section E is used to identify MAJCOM unique requirements. Supervisors and trainers at the unit level use Part I, Section C, and Part II of the CFETP to identify, plan, and conduct unit level training commensurate with the overall goals of this plan.

3. Use of the guidance provided in this CFETP ensures individuals in this career field receive effective and efficient training at the appropriate points in their careers. This plan enables the Air Force to train today's work force for tomorrow's jobs.

Abbreviations/Terms Explained

This section provides a common understanding of the terms that apply to the Ground Radar Systems Career Field and Education Training Plan.

Advanced Training. A formal course of training that leads to a technical or supervisory level of an AFS. Training is for selected airmen at the advanced level of an AFS.

Air and Space Expeditionary Force (AEF). An organizational structure composed of force packages of capabilities that provide warfighting combatant commanders with rapid and responsive air and space power. The AEF concept utilizes 10 individual force packages and are designated AEFs one through ten. The ten AEFs together with their support and command and control elements are tailored to meet specific combatant commanders' requirements across the spectrum of response options. An AEF, by itself, is not a deployable or employable entity. Rather, AEFs deploy within an AETF as air and space expeditionary wings, groups, or squadrons.

Air Education Training Command (AETC). Responsible for the recruiting, training and education of Air Force personnel. AETC also provides pre-commissioning, professional military and continuing education.

Air Force Career Field Manager (AFCFM). Representative appointed by the respective HQ USAF Deputy Chief of Staff or Under Secretary to ensure that assigned AF specialties are trained and utilized to support AF mission requirements.

Air Force Enlisted Classification Directory (AFECD). The official directory for all military enlisted classification descriptions, codes, and identifiers. Establishes the occupational structure of the Air Force enlisted force. The occupational structure is flexible to permit enlisted personnel to specialize and develop their skills and abilities while allowing the Air Force to meet changing mission requirements. Individual enlisted personnel have a joint responsibility with commanders and supervisors at all levels to fully develop their abilities consistent with Air Force needs and within the established patterns of specialization.

Air Force Institute for Advanced Distributed Learning (AFIADL). Combined with AU/SC Communications and Information to form Air University Education, Logistics and Communications (A4/6)

Air Force Job Qualification Standard (AFJQS). A comprehensive task list that describes a particular job type or duty position. Supervisors use the AFJQS to document task qualification. The tasks on AFJQSs are common to all persons serving in the described duty position.

Air Force Qualification Training Package (AFQTP). An instructional package designed for use at the unit to qualify or aid qualification in a duty position, program, or on a piece of equipment. It may be printed, computer-based, or other audiovisual media.

Air Force Specialty (AFS). A group of positions (with the same title and code) that require common qualifications.

Career Field Education and Training Plan (CFETP). A CFETP is a comprehensive core training document that identifies: life-cycle education and training requirements; training support resources, and minimum core task requirements for a specialty. The CFETP aims to give personnel a clear path and instill a sense of industry in career field training. CFETPs are officially posted at http://www.e-publishing.af.mil/.

Certifying Official. A person assigned by the commander to determine an individual's ability to perform a task to the required standard.

Computer Based Training (CBT). A forum for training in which the student learns via a computer terminal. It is an especially effective training tool that allows the students to practice applications while they learn.

Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR). Integrated systems of doctrine, procedures, organizational structures, personnel, equipment,

facilities, and communications designed to support a commander's exercise of command and control through all phases of the operational continuum. C4 systems include base visual information support systems. (Joint Pub 1-02, Department of Defense Dictionary of Military and Associated Terms)

Communications-Electronics (C-E): The specialized field concerned with the use of electronic devices and systems for the acquisition or acceptance, processing, storage, display, analysis, protection, disposition, and transfer of information.

Continuation Training. Additional advanced training that exceeds the minimum upgrade training requirements and emphasizes present or future duty assignments.

Core Task. A task the AFCFM identifies as a minimum qualification requirement for everyone within an AFSC. Core tasks may be specified for a particular skill level or in general across the AFSC. Guidance for using core tasks can be found in the applicable CFETP narrative.

Course Training Standard (CTS). A standard developed for all courses not governed by an STS, including specialized training packages and computer-based training courses.

Critical Tasks. Critical Tasks are tasks that require specific training and certification above and beyond other tasks. Tasks may be defined as critical either through AFI, Technical Orders, higher headquarters, or at any level in the unit.

Direct Reporting Unit (DRU). Air Force subdivisions directly subordinate to the CSAF. A DRU performs a mission that does not fit into any of the MAJCOMs. A DRU has many of the same administrative and organizational responsibilities as a MAJCOM. (Example of a DRU: USAF Academy)

Enlisted Specialty Training (EST). A mix of formal training (technical school) and informal training (on-the-job) to qualify and upgrade airmen in each skill level of a specialty.

Exportable Training. Additional training via computer assisted, paper text, interactive video, or other necessary means to supplement training.

Go/No Go. In OJT, it is the stage at which an individual has gained enough skill, knowledge, and experience to perform a task without supervision.

Initial Skills Training. A formal school course that results in an AFSC 3-skill level award for enlisted or mandatory training for upgrade to qualified officers.

Instructional System Development (ISD). A deliberate and orderly (but flexible) process for planning, developing, implementing, and managing instructional systems. It ensures personnel are taught in a cost efficient way the knowledge, skills, and attitudes essential for successful job performance.

Major Command (MAJCOM). A MAJCOM represents a major Air Force subdivision having a specific portion of the Air Force mission. Each MAJCOM is directly subordinate to HQ USAF. MAJCOMs are interrelated and complementary, providing offensive, defensive, and support elements.

Occupational Survey Report (OSR). A detailed report showing the results of an occupational survey of tasks performed within a particular AFSC.

On-the-Job Training (OJT). Hands-on, over-the-shoulder training conducted to train/certify personnel in both upgrade (skill level award) and job qualification (duty position certification) training.

Proficiency Training. Additional training, either in-residence or exportable advanced training courses, or on-the-job training, provided to personnel to increase their skills and knowledge beyond the minimum required for upgrade.

Qualification Training. Hands-on, task performance based training designed to qualify airmen in a specific duty position. This training program occurs both during and after the upgrade training process and is designed to provide skills training required to do the job.

Resource Constraints. Resource deficiencies (such as money, facilities, time, manpower, and equipment) that preclude desired training from being delivered.

Skill Training. A formal course that results in the award of a skill level.

Specialty Training Package and COMSEC Qualification Training Package. A composite of lesson plans, test material, instructions, policy, doctrine, and procedures necessary to conduct training. These packages are prepared by AETC, approved by National Security Agency (NSA), and administered by qualified communications security (COMSEC) maintenance personnel.

Specialty Training Standard (STS). An Air Force publication that describes an Air Force specialty in terms of tasks and knowledge that an airman in that specialty may be expected to perform or to know on the job. Also identifies the training provided to achieve a 3-, 5-, or 7-skill level within an enlisted AFS. It further serves as a contract between AETC and the functional user to show which of the overall training requirements for an Air Force Specialty Code (AFSC) are taught in formal schools and correspondence courses.

Standard. An exact value, a physical entity, or an abstract concept established and defined by authority, custom, or common consent to serve as a reference, model, or rule in measuring quantities or qualities, establishing practices or procedures, or evaluating results. It is a fixed quantity or quality.

Task Module (TM). A group of tasks performed together within an AFSC that requires common knowledge, skills, and abilities. TMs are identified by an identification code and a statement.

Total Force. All collective components (active, reserve, guard, and civilian elements) of the United States Air Force.

Training Capability. The capability of a training setting to provide training on specified requirements, based on the availability of resources.

Training Planning Team (TPT). Comprised of the same personnel as a U&TW, TPTs are more intimately involved in training development and the range of issues examined is greater than in the U&TW forum.

Training Requirements Analysis (TRA). A detailed analysis of tasks for a particular AFSC to be included in the training decision process.

Training Setting. The type of forum in which training is provided (formal resident school, on-the-job, field training, mobile training team, self-study, etc.).

Upgrade Training. Training that leads to the award of a higher skill level.

Utilization and Training Pattern. A depiction of the training provided to and the jobs performed by personnel throughout their tenure within a career field or AFS. There are two types of patterns: 1) Current pattern, which is based on the training provided to incumbents and the jobs to which they have been and are assigned; and 2) Alternate pattern, which considers proposed changes in manpower, personnel, and training policies.

Utilization and Training Workshop (U&TW). A forum and quality control tool for the AFCFM, MAJCOM functional managers, subject matter experts (SME) and AETC training personnel to determine and manage career field education and training requirements.

Wartime Training Requirements. Those tasks that must be taught when courses are accelerated in a wartime environment. These task are identified by an asterisk (*) in CFETP Part II, Section A, STS. In response to a wartime scenario, these tasks will be taught in the 3- level course in a streamlined training environment. These tasks are only for those career fields that still need them applied to their schoolhouse tasks.

Section A - General Information

1. Purpose of the CFETP. This CFETP provides the information necessary for career field managers, training management, supervisors, and trainers to plan, develop, manage, and conduct an effective and efficient career field training program. The plan outlines the training that individuals should receive in order to develop and progress throughout their careers. For purposes of this plan, training is divided into three areas: initial skills, upgrade, and continuation training. Initial skills training is the AFS specific training an individual receives upon entry in the Air Force, normally conducted by AETC at one of the technical training centers. Upgrade training identifies the mandatory courses, task qualification requirements, and Career Development Course (CDC) completion required for award of the 5-, 7-, or 9-skill level. Continuation training is additional training provided to 3-, 5-, 7-, and 9-level personnel to increase their skills and knowledge beyond the minimum required for upgrade. The CFETP has several purposes, some of which are:

1.1. Serves as a management tool to plan, develop, manage, and conduct a career field training program. Also, ensures that established training is provided at the appropriate point in an individual's career.

1.2. Identifies task and knowledge training requirements for each skill level in the specialty and recommends training throughout each phase of an individual's career.

1.3. Lists training courses available in the specialty, identifies sources of the training, and provides the training medium.

1.4. Identifies major resource constraints that impact implementation of the desired career field training program.

2. Use of the CFETP. The CFETP is maintained by the Air Force Career Field Manager (AFCFM). MAJCOM Functional Managers and AETC review the plan annually to ensure currency and accuracy and forward recommended changes to the AFCFM. Using the list of courses in Part II, they determine whether duplicate training exists and take steps to eliminate/prevent duplicate efforts. Career field training managers at all levels use the plan to ensure a comprehensive and cohesive training program is available for each individual in the career ladder.

2.1. AETC training personnel develop/revise formal resident and exportable training based upon requirements established by the users and documented in the STS. They also develop procurement and acquisition strategies for obtaining resources needed to provide the identified training.

2.2. MAJCOM Functional Managers ensure their training programs complement the CFETP mandatory initial skill and upgrade requirements. They also identify the needed AFJQSs/AFQTPs to document unique upgrade and continuation training requirements. Requirements are satisfied through OJT, resident training, or exportable courseware/courses. MAJCOM developed training to support this AFSC must be identified for inclusion into this plan. Forward recommendations concerning this CFETP to your MAJCOM Functional Manager.

2.3. 81 TRSS Qualification Training Flight (Q-Flight) personnel develop AFJQSs/AFQTPs based on requests submitted by the MAJCOMs and according to the priorities assigned by the Communications-Electronics (C-E) Maintenance Training Advisory Group (MATAG) Working Group.

2.4. Unit level training managers and supervisors manage and control progression through the career field by ensuring individuals complete the mandatory training requirements for upgrade specified in this plan and supplemented by their MAJCOM. The list of courses in Part II is used as a reference for planning continuation or career enhancement training.

3. Coordination and Approval of the CFETP. The AFCFM is the approval authority. MAJCOM representatives and AETC training personnel coordinate on the career field training requirements.

Section B - Career Field Progression and Information

4. Specialty Description. This information supplements that presented in the AFECD. (http://ask.afpc.randolph.af.mil/main_content.asp?prods1=1&prods2=14&prods3=591&prods4=1786&prods5=1795 under Part I)

4.1. **Ground Radar Systems Apprentice/Journeyman/Craftsman.**

4.1.1. Specialty Summary. Installs, maintains, and repairs fixed or mobile air traffic control, weather, ground aircraft control and warning radar systems, related radar operator training devices, aircraft identification equipment, remoting systems, video mappers, computerized processors, and communications subsystems. Operates and relocates related support, and communications equipment. Uses electronic test equipment. Related DoD Occupational Subgroup: 110300.

4.1.2. Duties and Responsibilities:

4.1.2.1. Performs ground radar functions. Plans, organizes, and schedules work assignments, workloads, and maintenance procedures for ground radar activities. Establishes production controls and standards. Prepares reports on maintaining, installing, repairing, removing, and siting all types of ground radar systems. Ensures operations and maintenance economies by improving work methods and procedures. Designs and develops organizational structures, including manning, duty assignments, and workloads. Inspects and evaluates ground radar activities. Serves on or directs ground radar maintenance inspection teams organized to evaluate base or command maintenance programs. Performs ground radar research and development projects.

4.1.2.2. Evaluates and resolves problems encountered during siting, installing, repairing, and overhauling ground radar systems. Uses layout drawings, schematics, and pictorial diagrams to solve maintenance problems, and analyzes construction and operating characteristics of equipment to determine source of malfunction. Plans, schedules, and implements installation of ground radar systems. Interprets maintenance and installation policy and procedures. Installs ground radar systems. Assembles, connects, modifies, and adjusts ground radar subassemblies such as antennas, transmitters, receivers, processors, indicator groups, and ancillary systems such as beacon equipment and video mappers. Conducts tests of installed equipment for proper component assembly and compliance with technical orders. Places in operation, calibrates, tunes, and aligns subassemblies according to approved technical data to maximize performance. Disassembles, relocates, assembles, and connects ground radar systems. Inspects and tests equipment for serviceability before and after relocation. Performs maintenance inspections on ground radar systems.

4.1.2.3. Repairs, overhauls, and modifies, ground radar systems. Isolates malfunctions by prescribed systems checking procedures, visual inspections, voltage checks, and other tests using electronic test equipment. Repairs ground radar subassemblies, including antennas, transmitters, receivers, operator training devices, radar beacon systems, remoting systems, video mappers, display systems, and associated communications systems and related equipment. Conducts performance tests of repaired subassemblies, using bench mockups and applicable test equipment. Accomplishes organizational and intermediate level equipment modifications according to time compliance technical orders, or field directives. Assembles, installs, and repairs antenna systems, transmission lines, and waveguides. Performs corrosion control.

4.1.2.4. Establishes requirements for tools, support equipment, personnel, supplies, and technical documents. Establishes work standards, methods, and controls for functions such as periodic inspections, operational testing, and equipment repair. Identifies maintenance problem areas and initiates corrective action. Develops methods for improving maintenance effectiveness and efficiency. Interprets inspection findings, and determines adequacy of corrective actions. Ensures maintenance data collection forms and inspection and maintenance records are accurately completed. Recommends changes to improve equipment performance or maintenance practices. Evaluates justification and practicality of recommended improvements to equipment performance and maintenance procedures. Develops and enforces safety standards and practices for ground radar maintenance activities. Coordinates with appropriate agencies to ensure systems support requirements.

4.2. **Communications Systems Superintendent.**

4.2.1. Specialty Summary. Manages and directs communications systems maintenance facilities and resources. Included are functions of installing, maintaining, repairing, overhauling, deploying, and modifying. Systems and equipment include ground radar and radio, meteorological and navigation, combat camera, imagery, video, television, satellite, intrusion detection, space systems, telemetry, and microwave. Related DoD Occupational Subgroup: 110100.

4.2.2. Duties and Responsibilities. This specialty "caps" at the Senior Master Sergeant level with those personnel that came up through the 2E0XX and 2E1XX career fields. Therefore, the duties and responsibilities defined below encompass the complete spectrum of this specialty.

4.2.2.1. Plans and organizes maintenance activities. Prepares and analyzes reports encompassing siting, deploying, maintaining, installing, repairing, and removing communications systems, combat camera equipment, imagery systems, and related equipment. Included are ground radio equipment; navigation and meteorological systems; satellite and microwave communications systems, video, television studio, and intrusion detection systems; combat camera; space systems, telemetry and instrumentation missions and imagery systems. Coordinates activities and resolves common problems.

4.2.2.2. Directs maintenance activities. Checks systems and equipment for proper siting, installation, and serviceability. Directs personnel employed in siting, deploying, inspecting, adjusting, removing, replacing, and repairing communications systems and related equipment. Directs overhaul and repair of ground radar and communications systems, combat camera equipment, telemetry systems, imagery systems, and related equipment. Ensures work standards are maintained. Determines extent and economy of repair, including disposition of malfunctioning equipment.

4.2.2.3. Inspects and evaluates maintenance activities. Interprets findings, and recommends or initiates corrective action. Serves on or directs inspection teams to evaluate maintenance activities. Discusses inspection findings. Maintains liaison with users to ensure adequate services are being provided.

4.2.2.4. Supervises maintenance functions. Resolves problems with installing, maintaining, repairing, and overhauling systems and equipment. Establishes local maintenance procedures and policies. Performs research and development of new systems and equipment.

4.3. **Communications-Electronics Chief Enlisted Manager**. This specialty "caps" at the Chief Master Sergeant Level with those specialties that came up through the 2E0XX, 2E1XX, 2E2XX, and 2E6XX career ladders. Personnel attaining the rank of Chief are assigned broad ranging duties in directing and managing diverse functions such as activities that install, remove, relocate, repair, and maintain radar systems (air traffic control and aircraft control and warning), telephone systems, satellite, wideband and telemetry systems, ground radio systems, meteorological and navigation systems, visual, imagery and intrusion detection systems, computer, network, switching and cryptographic, and antenna and cable systems. Other challenges that these Chiefs face are assignments to the White House Communications Agency, Air Force Element at CENTCOM, the Air Force Communications Agency, Defense Information Systems Agency, NATO, etc.

4.4. The following are some of the more common missions you may encounter as a 2E0X1.

AN/WSR-88D NEXT GENERATION WEATHER RADAR (NEXRAD)

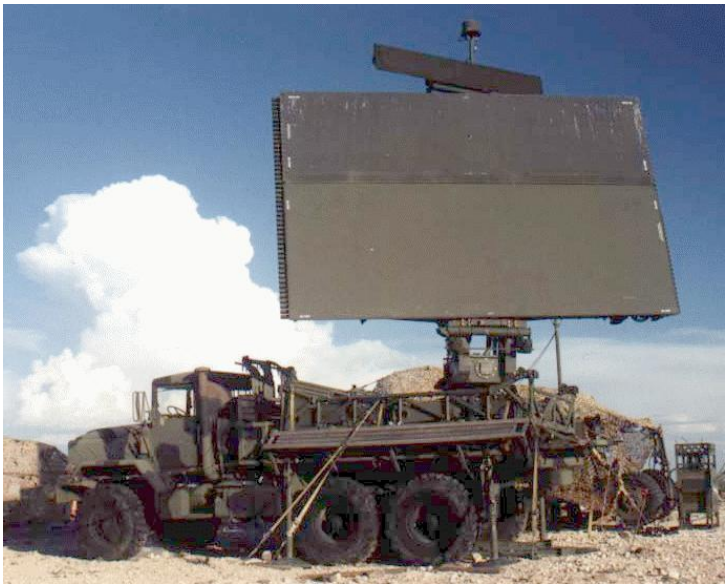
AN/GPN-20 AIRPORT SURVEILLANCE RADAR

AN/GPN-22 PRECISION APPROACH RADAR

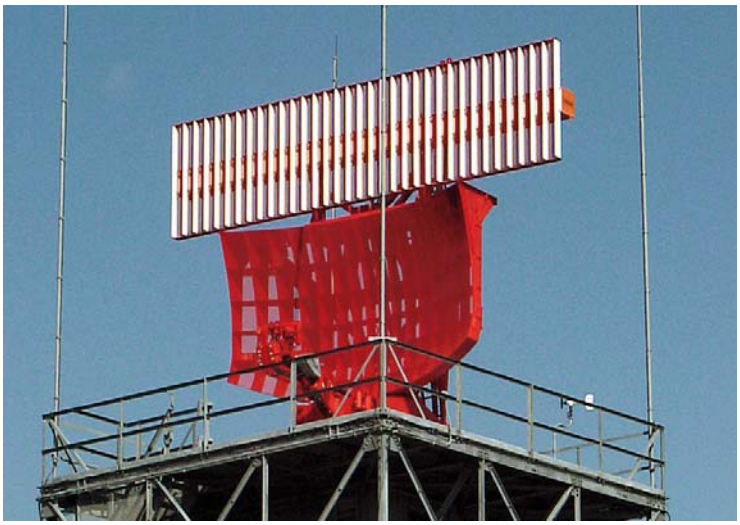
AN/TPN-19 LANDING CONTROL CENTRAL

AN/MPN-14K LANDING CONTROL CENTRAL

AN/TPS-75 MOBILE RADAR



AN/GPN-30 DIGITAL AIRPORT SURVEILLANCE RADAR (DASR)



AN/FSQ-204 STANDARD TERMINAL AUTOMATION REPLACEMENT SYSTEM (STARS).

5. Skill/Career Progression. Adequate training and timely progression from the apprentice to superintendent skill levels play an important role in the Air Force's ability to accomplish its mission. It is essential that everyone involved in training do their part to plan, manage, and conduct an effective training program. The guidance provided in this part of the CFETP and the 2E0X1 Education and Training Path table will ensure individuals receive viable training at appropriate points in their careers.

Apprentice (3-Level) Training
Upon completion of initial skills training a trainee will work with a trainer to enhance their knowledge and skills.
Utilize CDCs, AFJQSs/AFQTPs, and other exportable courses to progress in the field.
Once task qualified, a trainee may perform the task unsupervised.
Journeyman (5-Level) Training
Enter into continuation training to broaden experience base.
Five-levels may be assigned job positions such as team leader and shift supervisor.
Attend the Airman Leadership School (ALS) after serving 48 months in the Air Force or selection to rank of SSgt (active duty only). In-residence or correspondence course is required for Air National Guard/Air Force Reserve Command (ANG/AFRC) personnel.
Use CDCs and other references identified by the AFCFM to prepare for Weighted Airman Performance Systems (WAPS) testing.
Pursue a Community College of the Air Force (CCAF) degree.
Craftsman (7-Level) Training
A seven-level can expect to fill various supervisory and management positions such as shift leader, team chief, supervisor.
Seven-levels should take courses or obtain added knowledge on management of resources and personnel.
Continue academic education through CCAF or other higher degree programs.
Attend the Noncommissioned Officer Academy (NCOA). In-residence or correspondence course is required for ANG/AFRC personnel.
Superintendent (9-Level) Training
A nine-level can be expected to fill positions such as superintendents and various staff positions.
Pursue increased knowledge for budget, manpower, resources, and personnel management.
Pursue additional education and completion of courses outside of their AFS.
Chief Enlisted Manager (CEM) Training
Must be selected for CMSgt and possess qualifications in a feeder specialty (2E190 or 2E290).
CEMs work in a variety of similar jobs and functional areas where general managerial and supervisory abilities can be most effectively used and challenged.
Resident graduation of the USAF Senior NCO Academy (SNCOA) is a prerequisite for CMSgt sew-on (active duty only). In-residence or correspondence course required for ANG/AFRC personnel.
Resident graduation of the Chief Master Sergeant Leadership Course (CLC).

6. Training Decisions. This CFETP was developed to encapsulate an entire spectrum of training requirements for the Ground Radar Systems career field, using a building block approach (simple to complex). Included in this spectrum was the strategy of when, where, and how to meet the training requirements. The strategy must be apparent and affordable to reduce duplication of training and eliminate a disjointed approach to training. The following decisions were made by members of the 16-20 July 2007 Utilization and Training Workshop.

6.1. The STS underwent major changes to include the transformation from the 3-level STS, 5-level Career Training Guide (CTG), and 7-level CTG into a single STS standard.

6.2. Initial Skills. The requirement for the new 3 level course is October 2008. The schoolhouse introduced recommended changes as well as several from the AFCFM and Subject Matter Experts. The following outlines other changes:

6.2.1. The AN/TPS-75, DASR, STARS, and UNIX/Networking requirements will be incorporated into the 3-level course.

6.2.2. Training element terminology updates were incorporated to proficiency code migration as well as emerging technology standards.

6.3. Five-Level Upgrade Requirements. CDC development will continue to be restricted to six volumes, although all 2E six volume CDC courses will be separated into two 3-volume courses. The first course (2EX5X) will contain the three core volumes common to all 2E career fields. The second course will contain the three respective AFSC-specific volumes. The new CDCs will be available on or about 1 April 2009. The following table outlines 5-level CDC contents.

2EX5X	
VOLUME 1	Maintenance Management
VOLUME 2	Test Equipment
VOLUME 3	Communication Principles
2E051	
VOLUME 1	Introduction to Radar Support Systems
VOLUME 2	Introduction to Airfield Systems
VOLUME 3	Radar Deployment and Field Grounding

6.4. Proficiency Training. This training is job qualification for an assigned duty position. Additional qualification training becomes necessary when personnel transfer to another duty position, the unit mission changes, a new personnel program comes on board, or any time changes in techniques or procedures occur.

6.5. Continuation Training: The purpose of the continuation training program is to provide additional advanced training, exceeding the minimum upgrade training requirements, with the emphasis on present and future duty positions. MAJCOMs may develop a continuation training program to ensure individuals in the career field receive the necessary training at the appropriate points in their careers. The training program will identify both mandatory and optional training requirements.

6.6. Commercial Certifications. Table 1-1 contains available commercial certifications for 2E0X1 technicians. An "X" in the DANTES column indicates that testing may be completed at the base education office. Tuition Assistance (TA) pays for only one certification during an entire career. See the local base education office for more information. The Department of Veterans Affairs (DVA) has licensing and certification benefits that can be used, including the Montgomery GI Bill. Visit https://www.gibill2.va.gov/ for more information.

Certification	Criteria	Website	DANTES
Electronics Technician Association (ETA) • Associate CET • Journeyman CET o RADAR	• Experience • Written Exam	http://www.eta-i.org/	X
National Association of Radio and Telecommunications Engineers (NARTE) • Junior Telecommunications Tech • Senior Telecommunications Tech • Master Telecommunications Tech	• Education/Training • Experience • Personal References • Written Exam	http://www.narte.org	X

Table 1-1

7. Community College of the Air Force (CCAF) Academic Programs. Enrollment in CCAF occurs upon completion of basic military training. CCAF provides the opportunity for all enlisted members to obtain an Associate in Applied Science degree. In order to be awarded the CCAF degree, all academic requirements must be completed before the student separates from the Air Force, retires, or is commissioned as an officer. In addition to the associate degree program, CCAF offers the following:

7.1. Occupational Instructor Certification. The College offers the Occupational Instructor Certification to instructors teaching full time in a CCAF affiliated school. To qualify, instructors must complete a 3 semester hour Instructor Methodology course, a 12 semester hour Teaching Internship, have two years teaching experience from date of Teaching Internship completion, hold an associate or higher degree, and be recommended by their commander/commandant.

7.2. The Electronic Systems Technology (4VHP) program applies to 2EXXX career fields.

7.2.1. Degree Requirements: Individuals must hold the 5-skill level at the time of program completion.

	Semester hours
Technical Education	24
Leadership, Management, and Military Studies	6
Physical Education	4
General Education	15
Program Electives	15
Total	64

7.2.2. Technical Education (24 semester hours): A minimum of 12 semester hours of Technical Core subjects and courses must be applied and the remaining semester hours will be applied from Technical Core/Technical Elective subjects and courses.

7.2.3. Leadership, Management, and Military Studies (6 semester hours): Professional military education and/or civilian management courses. See CCAF General Catalog for application of civilian management courses.

7.2.4. Physical Education (4 semester hours): Satisfied upon completion of basic military training.

7.2.5. General Education (15 semester hours): Courses must meet the criteria for application of courses to the General Education requirement and be in agreement with the definitions of applicable General Education subjects/courses as outlined in the CCAF General Catalog.

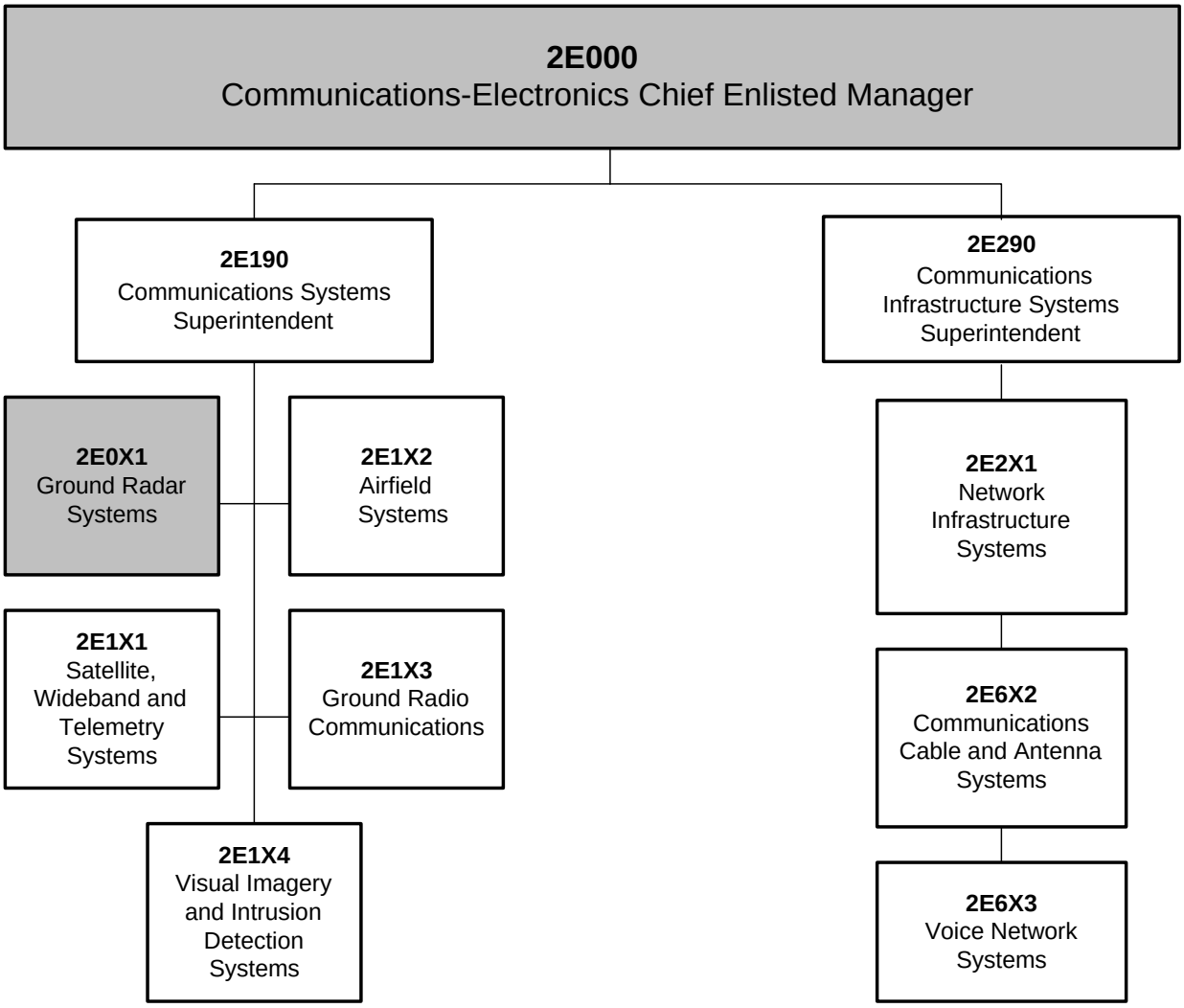
7.2.6. Program Elective (15 semester hours): Satisfied with applicable Technical Education; Leadership, Management, and Military Studies; or General Education courses, including natural science courses meeting General Education requirement application criteria. Six semester hours of CCAF degree applicable technical credit otherwise not applicable to this program may be applied.

7.3. See the current CCAF General Catalog for details regarding the Associates of Applied Science in Electronic Systems Technology. The catalog is available at your education office or from http://www.au.af.mil/au/ccaf/.

7.4. Additional off-duty education is highly encouraged. Individuals desiring to become an AETC instructor should be actively pursuing an associate degree. A degreed faculty is necessary to maintain CCAF's accreditation through the Southern Association of Colleges and Schools.

8. **Career Field Path**. The following summarizes career progression and personnel allocations across the career ladder. 2E0X1, 2E1XX, 2E2X1, and 2E6XX personnel maintain their individual AFSC identifiers through the rank of MSgt. Upon promotion to SMSgt, AFSC 2E0X1, 2E1X1, 2E1X2, 2E1X3, and 2E1X4 merge to become a 2E190. Likewise the 2E2X1, 2E6X2, and 2E6X3 merge to become the 2E290. At Chief Enlisted Manager, the 2E190 merges with 2E290 specialty to become a 2E000. Specific demographic information is available on the Web at http://wwa.afpc.randolph.af.mil/demographics/

2EXXX Career Field Progression



2E0X1 GROUND RADAR SYSTEMS EDUCATION AND TRAINING PATH	
EDUCATION AND TRAINING REQUIREMENTS	AVERAGE SEW ON TIME AND COMMENTS
BASIC MILITARY TRAINING SCHOOL	
APPRENTICE TECHNICAL SCHOOL (3-SKILL LEVEL)	Airman..... 6 months
UPGRADE TO JOURNEYMAN (5-SKILL LEVEL) Minimum 15 months OJT training (9 months for retrainees). Completion of all 2E051 core tasks and 5-Level CDCs. .....Mandatory Specific AFJQSs/AFQTPs for equipment at assigned location. .....Mandatory Maintenance Management and Generic AFJQSs/AFQTPs for various unit level duties.....Mandatory AETC Supplemental training courses as determined by MAJCOM .....Optional AFETS/CFS/SMT training as determined by MAJCOM .....Optional	A1C ..... 10 months SrA ..... 3 years Earliest ..... 28 months HYT ..... 12 years
AIRMAN LEADERSHIP SCHOOL (ALS) Attendance is limited to SSgt selectees or those attaining 48 months Total Active Federal Military Service (TAFMS) and who have not been selected for promotion to SSgt. Completion is mandatory before assuming the rank of SSgt. ANG/AFRC may complete by correspondence course.....Mandatory	TRAINER: Must meet trainer eligibility requirements as per AFI 36-2201 Volume 3, chapter 6
UPGRADE TO CRAFTSMAN (7-SKILL LEVEL) Minimum rank of SSgt. 12 months OJT training (6 months for retrainees). Completion of all 2E071 core tasks and AFQTP 2EXXX-201L, Communications-Electronics Work Center Manager's Handbook. Must be 7-level to sew on TSgt.....Mandatory Maintenance Management and Generic AFJQSs/AFQTPs for various unit level duties.....Mandatory AETC Supplemental training courses as determined by MAJCOM.....Optional AFCA seminars at Scott AFB. Consult your MAJCOM for course quotas.....Optional CFS/SMT training as determined by MAJCOM .....Optional	SSgt ..... 4.43 years Earliest ..... 3 years HYT ..... 20 years TSgt..... 9.88 years Earliest ..... 5 years HYT ..... 24 years CERTIFIER: Must meet certifier eligibility requirements as per AFI 36-2201 Volume 3, chapter 6

2E0X1 GROUND RADAR SYSTEMS EDUCATION AND TRAINING PATH	
EDUCATION AND TRAINING REQUIREMENTS	AVERAGE SEW ON TIME AND COMMENTS
NONCOMMISSIONED OFFICER ACADEMY (NCOA). Completion of course is mandatory before assuming the rank of MSgt. .....Mandatory Active duty attendance is limited to TSgt and TSgt selectees. ANG/AFRC SSgt or TSgt may attend in-residence or complete by correspondence course.	MSgt..... 16.47 years Earliest ..... 8 years HYT ..... 26 years
USAF SENIOR NONCOMMISSIONED OFFICER ACADEMY (SNCOA) Attendance is limited to SMSgt, SMSgt selectees, and selected MSgts. Completion is mandatory before assuming the rank of CMSgt. .....Mandatory SNCOA Correspondence Course .....Optional ANG/AFRC may complete by correspondence course. ANG/AFRC MSgts may attend in-residence.....Mandatory	SMSgt ..... 20.17 years Earliest ..... 11 years HYT ..... 28 years
UPGRADE TO SUPERINTENDENT (9-SKILL LEVEL) Minimum rank of SMSgt. Complete AFQTP 2EXXX-201LB, Communications-Electronics Manager's Handbook. .....Mandatory Maintenance Management and Generic AFJQSs/AFQTPs for various unit level duties. .....Mandatory	CMSgt ..... 23.48 years Earliest ..... 14 years HYT ..... 30 years
Chief Master Sergeant Leadership Course (CLC) Attendance is limited to Chief Master Sergeants and Chief Master Sergeant selects. ……..…Mandatory	CMSgt ..... 23.48 years Earliest ..... 14 years HYT ..... 30 years

NOTE 1: Published sew on times are AFSC averages from 2007. Refer to Enlisted Promotions at Air Force Personnel Center for more information: http://ask.afpc.randolph.af.mil/EProm/default.asp?prods3=5&prods2=2&prods1=1

NOTE 2: See Part II, Section D for a list of AFJQSs/AFQTPs, AETC supplemental, and AFETS/CFS/SMT training.

NOTE 3: All core/duty position tasks must be completed prior to upgrade.

Section C - Skill Level Training Requirements

9. Purpose. The various skill levels in the career field are defined in terms of tasks and knowledge requirements for each skill level in the Ground Radar Systems career field of the Communications-Electronics Systems career ladder. They are stated in broad, general terms and establish the standards of performance. An all encompassing core task list has not been developed for this specialty because of the diversity of the missions supported and the equipment installed to meet mission requirements. Core tasks, knowledge items, and skill requirements for this specialty are identified in the STS, CDCs, AFJQSs/AFQTPs, etc. Completion of the mandatory 3-level skill awarding course, CDCs, and applicable AFJQSs/AFQTPs define the Air Force core tasks for this specialty.

10. Specialty Qualification Requirements.

10.1. **Apprentice (3-Level) Training.**

KNOWLEDGE	Knowledge is mandatory of: electronics principles and digital techniques, including transistors and solid-state component theory that applies to ground radar systems Maintenance data processing systems Wiring diagrams, circuit diagrams, schematic diagrams, and technical orders Air Force maintenance and supply procedures Networking skills
EDUCATION	Completion of high school with courses in physics and mathematics is desirable.
TRAINING	Electronics Principles, course E3AQR2E031 01WB (PDS Code QOT). (See Attachment 1 of the STS for course training standard) Ground Radar Systems Apprentice, course E3ABR2E031 01WC (PDS Code V77) (See Attachment 2 of the STS for course training standard)
EXPERIENCE	None required.
OTHER	Mandatory as indicated: Normal color vision is required for entry into this AFSC as defined by AFMAN 48-123, *Medical Examination and Standards*. Qualification to operate government vehicles according to AFI 24-301, *Vehicle Operations*. Eligibility for a Secret security clearance according to AFI 31-501, *Personnel Security Program Management*, is mandatory for award and retention of this AFSC.
IMPLEMENTATION	Entry into training is accomplished by reserving a position in the career field upon entry into the Air Force.

10.2. Journeyman (5-Level) Training.

KNOWLEDGE	No additional knowledge requirements.
TRAINING	No AETC training requirement.
EXPERIENCE	Experience is mandatory for award of the AFSC indicated: Qualification and possession of AFSC 2E031 Testing, calibrating, or repairing ground radar systems, associated communications and identification equipment, operating automatic tracking radar or electronic combat systems. Use of test equipment and interpretation of test results Completion of the 2EX5X and 2E051 Career Development Course Completion of all 2E051 core tasks (See Attachment 2 for the STS) Completion of applicable equipment AFJQSs/AFQTPs Completion of all local tasks assigned for the duty position
OTHER	Eligibility for a Secret security clearance according to AFI 31-501, *Personnel Security Program Management*, is mandatory for award and retention of this AFSC.
IMPLEMENTATION	Entry into formal upgrade is initiated upon assignment to the individual's first duty station. Qualification training is initiated anytime individuals are assigned duties for which they are not qualified. Use CDCs and AFJQSs/AFQTPs concurrently to obtain the necessary qualification for refresher and cross-utilization training.

10.3. **Craftsman (7-Level) Training.**

KNOWLEDGE	No additional knowledge requirements.
TRAINING	No AETC training requirement.
EXPERIENCE	Qualification and possession of AFSC 2E051 Experience is mandatory in performing or supervising functions such as: siting, installing, repairing, overhauling, or modifying ground radar systems and associated communications and identification equipment Completion of all 2E071 core tasks (See Attachment 2 for the STS) Completion of AFQTP 2EXXX-201L, Communications-Electronics Work Center Manager's Handbook Completion of applicable equipment/unit management function AFJQSs/AFQTPs
OTHER	Eligibility for a Secret security clearance according to AFI 31-501, *Personnel Security Program Management*, is mandatory for award and retention of this AFSC.
IMPLEMENTATION	Entry into formal upgrade training is initiated when individuals obtain the necessary rank and skill level. Qualification training is initiated anytime an individual is assigned duties for which they are not qualified. Use CDCs and AFJQSs/AFQTPs concurrently to obtain the necessary qualification for refresher and cross-utilization training.

10.4. **Superintendent (9-Level) Training.**

KNOWLEDGE	Electronic principles theory and its application to ground radio, meteorological and navigation, combat camera, imagery, video, television, telemetry systems, space systems, intrusion detection, and satellite and microwave communications facilities, systems, and equipment; and their interoperability The communications and computer elements of a typical air base Interpretation of wiring and logic diagrams, blueprints, and technical orders
TRAINING	No AETC training requirement.
EXPERIENCE	Qualification and possession of AFSC 2E071, or 2E171/72/73/74 is mandatory Experience is mandatory managing or directing functions such as installing, maintaining, repairing, or modifying the various systems and related equipment of the feeder specialties. AFQTP 2EXXXX-201LB, Communications-Electronics Manager's Handbook
OTHER	Eligibility for a Secret security clearance according to AFI 31-501, *Personnel Security Program Management*, is mandatory for award and retention of this AFSC.
IMPLEMENTATION	Entry into OJT is initiated when individuals are selected for the rank of SMSgt. Qualification training is initiated anytime individuals are assigned duties for which they are not qualified.

10.5. Training Sources.

10.5.1. Electronic Principles training - 332 TRS, Keesler AFB, MS at https://www.my.af.mil.

10.5.2. AFSC specific training - 338 TRS, Keesler AFB, MS. at https://www.my.af.mil/

10.5.3. CDC 2EX5X/ 2E051 are available for upgrade purposes through the unit training manager. For individual qualification and cross-utilization training, CDCs are ordered through the unit training office.

10.5.4. AFJQSs/AFQTPs are Air Force publications and are mandatory for use in qualification training. They are developed by the 81 TRSS (Q-Flight), Keesler AFB, MS and may be downloaded from https://wwwmil.keesler.af.mil/81trss/qflight/index.htm. Procedures for requesting development of AFJQSs/AFQTPs are contained in AFI 36-2233, *Air Force On-the-Job Training Products for Communications-Electronics Enlisted Specialty Training*. AFJQSs/AFQTPs are listed in Part II, Section D, of this CFETP.

10.5.5. Contract Field Service (CFS), and Special Maintenance Team (SMT) training may be requested to provide on-site training. Direct requests for CFS, or SMT training to your MAJCOM.

Section D - Resource Constraints

11. Purpose. This section identifies known resource constraints that preclude optimal/desired training from being developed or conducted, including information such as part numbers, national stock numbers, number of units required, cost, manpower, etc. Included are narrative explanations of each resource constraint and an impact statement describing what effect each constraint has on training. Finally, this section includes actions required, OPR, and target completion date. Resource constraints will be, at a minimum, reviewed and updated annually.

12. Apprentice (3-Level) Training.

12.1. Constraints: None.

12.1.1. Impact. N/A

12.1.2. Resources Required. N/A

12.1.3. Action Required. N/A

12.2. OPR/Target Completion Date. N/A

13. Journeyman (5-Level) Training.

13.1. Constraints: None.

13.1.1. Impact. N/A

13.1.2. Resources Required. N/A

13.1.3. Action Required. N/A

13.2. OPR/Target Completion Date. N/A

14. Craftsman (7-Level) Training.

14.1. Constraints: None.

14.1.1. Impact. N/A

14.1.2. Resources Required. N/A

14.1.3. Action Required. N/A

14.2. OPR/Target Completion Date. N/A

Section E - Transition Training Guide

15. There are currently no transition training requirements. This area is reserved.

PART II

Section A - Specialty Training Standard

1. Implementation. The implementation of training in support of this STS is with the class beginning 20081021 and graduating 20090309.

2. Purpose. As prescribed in AFI 36-2201, Vol 5, and this STS:

2.1. The Course Training Standard (CTS) at Attachment 1 and Specialty Training Standard (STS) at Attachment 2:

2.1.1. Establishes the training requirements for airmen to perform 3-skill level duties in the Ground Radar Systems career ladder of the Communications-Electronics Systems career field. The training tasks are based on an analysis of duties in AFECD for AFSC 2E031.

2.1.2. Provides the basis for the development of more detailed training materials, training objectives, and training evaluation instruments for the course.

2.1.3. Shows formal training requirements. Attachment 1 lists the Electronic Principles requirements for this specialty and contains the proficiency code key pertaining to this attachment. Students receive this training through AETC course E3AQR2E031 01WB.

2.1.4. Attachment 2 contains a list of proficiency statements that describe knowledge and job performance requirements the graduate demonstrates on the job as a result of training received in course E3ABR2E031 01WC as described in the Air Force Education and Training Course Announcements (ETCA) database. Part I, Section D, and the Preface to Attachment 2 explains constraints and/or guidelines to training. When notes or explanations describe constraints in the skill awarding course, they indicate that training on those items is restricted due to the limitation described.

2.1.5. Attachment 2 provides a complete list of continuation training requirements for the award of AFSC 2E051 and 2E051, the mandatory task and knowledge training that is required for the 5 and 7 skill levels in the Ground Radar Systems career field of the Communications-Electronic Systems career ladder. These are based on an analysis of duties and responsibilities as outlined in the AFECD.

2.1.6. Become a job qualification standard for OJT when placed in AF Form 623, Individual Training Record, and used according to AFI 36-2201, Vol 3.

2.1.7. Indicates career knowledge provided in the 5-skill level CDCs. See Air University Education, Logistics and Communications (A4/6) catalog maintained by the unit OJT manager for current CDC listings or go to http://www.maxwell.af.mil/au/afiadl.

2.1.8. Is a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Specialty Knowledge Tests (SKT) are developed at the USAF Occupational Measurement Squadron by senior NCOs with extensive practical experience in their career fields. The tests sample knowledge of CTG subject matter areas judged by test development team members to be most appropriate for promotion to higher grades. Questions are based upon study references listed in the WAPS catalog. Individual responsibilities are listed in chapter 1 of AFI 36-2605, *Air Force Military Personnel Testing System.* WAPS is not applicable to the Air National Guard or Air Reserve forces.

3. Recommendations. Comments and recommendations are invited concerning the quality of AETC training. A Training Feedback Hotline has been installed for the supervisors' convenience. For a quick response to concerns, call our Training Feedback Hotline at DSN 597-4566, fax us at DSN 597-3790, or e-mail us at, 81trg-tget@keesler.af.mil. Reference this STS and identify the specific area of concern (paragraph, training standard element, etc).

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

MICHAEL W. PETERSON, Lieutenant General, USAF
Chief of Warfighting Integration and
Chief Information officer

Attachments:
1. Electronic Principles Course Training Standard
2. Specialty Training Standard, 2E0X1

PREFACE

NOTE 1: Dashed items in this CTS are not part of the original CTS created at the February 2007 Electronic Principles U&TW however, they are the specific objectives taught in the Electronic Principles course designed to meet the CTS requirements.

NOTE 2: Unless otherwise stated, students may be allowed two assists from the instructor and still successfully achieve the proper level of proficiency. An instructor assist is anytime an instructor must intercede to provide guidance to a student which leads to a satisfactory completion of the objective or to prevent the student from continuing in a manner that will lead to an unsatisfactory conclusion, safety violation, or damage to equipment.

PROFICIENCY CODE KEY		
	SCALE VALUE	DEFINITION: The individual
Task Performance Levels	1	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (EXTREMELY LIMITED)
	2	Can do most parts of the task. Needs help only on hardest parts. (PARTIALLY PROFICIENT)
	3	Can do all parts of the task. Needs only a spot check of completed work. (COMPETENT)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. HIGHLY PROFICIENT)
***Task Knowledge Levels**	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step-by-step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (COMPLETE THEORY)
****Subject Knowledge Levels**	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

EXPLANATIONS

* A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task. (Examples: b and 1b)

** A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task or for a subject common to several tasks.

X This mark is used alone instead of a scale value to show that no proficiency training is provided in the course.

\- This mark is used alone in course columns to show that training is required, but not given, due to limitations in resources.

X This mark is used alone in course columns to show that training required but not given due to limitations in resources.

NOTE: All tasks and knowledge items shown with a proficiency code are trained during wartime.

	PROFICIENCY CODE
1. ELECTRONICS SUPPORT SUBJECTS	
1.1. Safety	B
1.2. First Aid	A
1.3. Electrostatic Discharge (ESD) Control	B
1.4. Electromagnetic Effects (EMP/EMI)	B
1.5. Metric Notation	
1.5.1. Calculate Powers of Ten	B
1.5.2. Electrical Prefixes	B
2. USE TEST EQUIPMENT	
2.1. Analog Multimeter	2b
2.2. Digital Multimeter	2b
2.3. Oscilloscope	2b
2.4. Signal/Function Generator	2b
3. BASIC CIRCUITS	
3.1. Direct Current (DC)	
3.1.1. Theory	B
3.1.2. Calculations	B
3.2. Alternating Current	
3.2.1. Theory	B
3.2.2. Calculations	B
4. BASIC CIRCUIT COMPONENTS	
4.1. Resistors	
4.1.1. Theory	B
4.1.2. Color Code	B
4.1.3. Troubleshoot (Calculate and measure)	2b
4.2. Inductors	
4.2.1. Theory	B

	PROFICIENCY CODE
4.2.2. Troubleshoot	2b
4.3. Capacitors	
4.3.1. Theory	B
4.3.2. Troubleshoot	2b
4.4. Resistive-Capacitive-Inductive (RCL) Circuits Theory	
4.4.1. Basic	A
4.4.2. Resonant	A
4.4.3. Frequency Sensitive Filter	A
5. ELECTROMAGNETIC DEVICES	
5.1. Transformers	
5.1.1. Theory	B
5.1.2. Troubleshoot	2b
5.2. Relays and Solenoids	
5.2.1. Theory	B
5.2.2. Troubleshoot Relay	2b
5.3. Motor Theory	
5.3.1. DC	A
5.3.2. AC	A
5.4. Generator Theory	
5.4.1. DC	A
5.4.2. AC	A
5.5. Syncro/Servo	
5.5.1. Theory	B
5.6. Transducer	
5.6.1. Theory	B

	PROFICIENCY CODE
6. SOLID STATE DEVICES	
6.1. Diodes	
6.1.1. Theory	B
6.1.2. Troubleshoot	2b
6.2. Transistors	
6.2.1. Theory	B
6.2.2. Transistor Troubleshooting	2b
6.3. Special Purpose Device Theory	
6.3.1. Zener Diode	B
6.3.2. Light Emitting Diode (LED)	A
6.3.3. Liquid Crystal Display (LCD)	A
6.3.4. Integrated Circuits (IC)	A
6.3.5. Operational Amplifiers	A
7. TRANSISTOR AMPLIFIER CIRCUITS	
7.1. Theory	B
7.2. Stabilization	B
7.3. Coupling	B
8. POWER SUPPLY CIRCUITS	
8.1. Theory	
8.1.1. Rectifiers	B
8.1.3. Filters	B
8.1.3. Voltage Regulators	B
8.2. Troubleshoot	2b
9. WAVE GENERATING CIRCUITS	
9.1. Theory	
9.1.1. Oscillators	B
9.1.2. Multivibrators	B
9.1.3. Waveshaping Circuits	B

	PROFICIENCY CODE
10. DIGITAL NUMBERING SYSTEMS	
10.1. Conversions	
10.1.1. Binary	B
10.1.2. Octal	-
10.1.3. Hexadecimal	B
10.1.4. Binary Coded Decimal	B
10.2. Hexadecimal Math Operations	B
11. DIGITAL LOGIC CIRCUITS	
11.1. Theory	
11.1.1. Gates	B
11.1.2. Flip Flops	B
11.2. Digital to Analog (AC) and Analog to Digital (DC) Converters Theory	B
12. BASIC COMPUTER FUNDAMENTALS	
12.1. Network Theory	
12.1.1. Components	A
12.1.2. Types	A
12.1.3. Topologies	B
12.1.4. Communications Medium	B
12.1.5. LAN Architecture	B
13. BASIC COMMUNICATION THEORY	
13.1. Theory	
13.1.1. Antenna	B
13.1.2. Transmission Lines	B
13.1.3. Data Bus	B
13.1.4. Waveguide	A
13.1.5. Fiber Optics	-
13.1.6. Cryptology	B
13.1.7. Waveforms (DAMA, PHASEHIFT, FREQUENCY-HOPPING, i.e. SINCGARS)	A

	PROFICIENCY CODE
13.2. Transmitters	
13.2.1. Frequency Modulation (FM)	B
13.2.2. Amplitude Modulation (AM)	B
13.3. Receivers	
13.3.1. Frequency Modulation (FM)	B
13.3.2. Amplitude Modulation (AM)	B
13.3.2.1. AM Receiver Signals	
13.3.2.1.1. Measure Radio Frequency (RF)	1a
13.3.2.1.2. Measure Intermediate Frequency (FM)	1a
13.3.2.1.3. Measure Audio Frequency (AF)	1a
13.3.2.1.4. Measure Local Oscillator (LO) Output	1a
14. SOLDER AND DESOLDER	
14.1. Terminal Connection	-
14.2. Multipin Connector	-
14.3. Coaxial Connector	-
15. ASSEMBLE SOLDERLESS CONNECTORS	
15.1. Crimped Connection	-
15.2. Coaxial Connector	-
15.3. Multipin Connector	-
16. GENERAL SHOP PRACTICES	
16.1. Securing Cable	-
16.2. Safety Wire	-
16.3. Mulitpin Connector	-
16.4. Splicing Conductors	-
16.5. Troubleshooting Methods	-

PREFACE

NOTE 1: Users are responsible for annotating technical references to identify current references pending STS revision. Locate current publications at.

DOD Issuances and OSD Administrative Instructions at http://www.dtic.mil/whs/directives/
Air Force publications at http://www.e-publishing.af.mil/.
AFSSIs at https://private.afca.af.mil/ip/
DISA Circulars and Instructions at http://www.disa.mil/main/about/publications.html
Technical Orders (TO) at https://www.toindex-s.wpafb.af.mil/
Online ReferenceWare and CBTs: https://www.my.af.mil/faf/FAF/fafHome.jsp (Select "IT E Learning" link under *Top Viewed: Training*)

NOTE 2: AFJQS 2EXXX-200B, 2EXXX C-E Enlisted Specialty Training is mandatory for use in conjunction with this STS. It sets the Air Force standard for qualification for the following subject areas:

Supply
Training
Supervision
Physical Security
Electronic Warfare
Work Center Administration
Operational Risk Management
Career Progression Information
Information Security (INFOSEC)
Communications Security (COMSEC)
Electronic Emission Security (EMSEC)
C-E Equipment Maintenance Management
Operator Care of Assigned Government Vehicles
Technical Orders (TO) and Technical Publications
Protect MAJCOM/FOA Critical Mission Information
C-E Equipment Maintenance System Inspecting, Reporting, and Forms

NOTE 3: Equipment/system knowledge and/or performance tasks are defined in the AFJQS. AFJQS items set the standard for qualification and certification and are mandatory for use in conjunction with this STS. Annotate completion of these products on AF Form 623A.

NOTE 4: When an AFJQS is loaded into IMDS, letters in the AFJQS identifier are converted to the number representing each letter's alphabetical position (e.g., 200B would be loaded as 200.2). To save space, individual AFJQS tasks are not normally listed within the STS. However, if a STS task is closely related to an AFJQS task or area, the AFJQS task/heading is listed (e.g., 200.2.12) and the related STS task is listed under it (e.g., 200.2.12.75). To prevent potential task numbering conflicts between AFJQS tasks and subordinate STS tasks, subordinate STS tasks start with the number 75. This creates gaps in the final task numbering sequence, but integrates related STS and AFJQS tasks so they will be listed on your training documents in the same area and in order.

NOTE 5: When an AFJQS is loaded into TBA, each AFJQS is identified by the AFJQS title (e.g. AFJQS 2EXXX-200B). However, each AFJQS loaded into TBA begins with the numbering scheme of 001.001.

NOTE 6: Upon base specific implementation of TBA, all members requiring training records will transition from documenting training of this CFETP, associated AFJQSs and AFQTPs from IMDS to TBA.

NOTE 7: When loading AFJQS tasks into the IMDS database, tasks are loaded as STS not 797 items.

NOTE 8: In the event of data network or computer system failure, courses are authorized to use alternative methods of instruction to fulfill this STS element.

NOTE 9: Unless otherwise stated in the objective, the student may be allowed two assists from the instructor and still successfully achieve the proper level of proficiency. An instructor assist is defined as anytime an instructor must intercede to provide guidance to a student which leads to a satisfactory completion of the objective or to prevent a student from continuing in a manner which will lead to an unsatisfactory conclusion, safety violation, or damage to the equipment. Successful students have performed the task to the satisfaction of the course; however, they may not be capable of meeting the field requirements for speed or accuracy.

NOTE 10: All equipment related objectives are performed by following procedures from technical orders, technical manuals, or student instructional material developed by the training facility.

NOTE 11: The equipment items identified below are used as training vehicles within the skill awarding course since it incorporates most of the basic principles and procedures found in the remainder of the AFSC's equipment inventory.

AN/GPN-20
AN/GPN-22
AN/TPS-75
AN/TPX-42
AN/GPN-30
OD-153

NOTE 12: All objective references are performed as terminal objectives. Knowledge required to perform STS elements is inherent in each objective. This includes, but is not limited to, defining the capabilities, limitations, and theory of operation of the stated item.

NOTE 13: All tasks are trained during wartime.

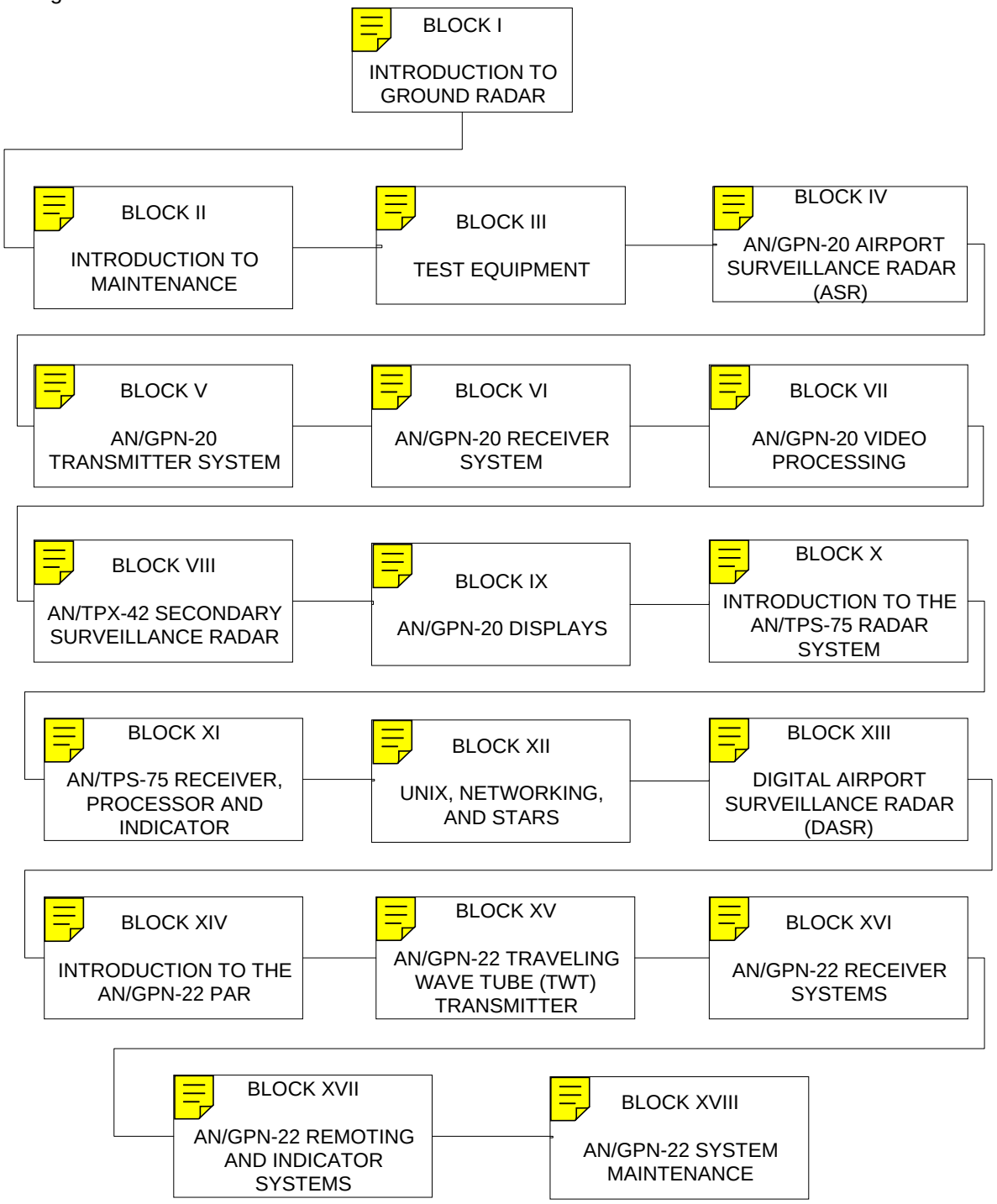
NOTE 14: Can be satisfied by the processor power supply.

NOTE 15: Can be satisfied using a rotary joint trainer.

Ground Radar Systems

(E3ABR2E031 01WC)

The following summarizes the systems and concepts taught in the Ground Radar Systems Apprentice course. This course provides Ground Radar Systems technicians the knowledge and skills necessary for entry into formal upgrade training. To view block information select note icon on the flowchart. This information may vary from the current course content. Contact the course training manager for possible changes.



QUALITATIVE REQUIREMENTS

PROFICIENCY CODE KEY		
	SCALE VALUE	DEFINITION: The individual
Task Performance Levels	1	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (EXTREMELY LIMITED)
	2	Can do most parts of the task. Needs help only on hardest parts. (PARTIALLY PROFICIENT)
	3	Can do all parts of the task. Needs only a spot check of completed work. (COMPETENT)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. HIGHLY PROFICIENT)
***Task Knowledge Levels**	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step-by-step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (COMPLETE THEORY)
****Subject Knowledge Levels**	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

EXPLANATIONS

* A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task. (Examples: b and 1b)

** A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task or for a subject common to several tasks.

\- This mark is used alone in course columns to show that training is required, but not given, due to limitations in resources.

X This mark is used alone in course columns to show that training required but not given due to limitations in resources.

NOTE: All tasks and knowledge items shown with a proficiency code are trained during wartime.

Core Task Column Key	
Value	Definition:
-	When this code is used in the Core Tasks Column it indicates that the qualification on this task is a local determination.
5	When this code is used in the Core Tasks Column it indicates the CFM has mandated this task as a core 5-level requirement. All personnel in 5-lvl upgrade training must be qualified on this task before they can be upgraded. The training to satisfy this requirement is either provided through OJT, CBTs, and CDCs, or a combination.
5*	When this code is used in the Core Tasks Column it indicates the CFM has mandated this task as a core 5-level requirement if the assigned duty position is responsible to maintain/operate the equipment or system. This code indicates that training to satisfy this requirement is normally provided through OJT
7	When this code is used in the Core Tasks Column it indicates the CFM has mandated this task as a core 7-lvl requirement. All personnel in 7-lvl upgrade training must be qualified on this task before they can be upgraded. The training to satisfy this requirement is either provided through OJT, CBTs, and CDCs, or a combination.
7*	When this code is used in the Core Tasks Column it indicates the CFM has mandated this task as a core 7-level requirement if the assigned duty position is responsible to maintain/operate the equipment or system. This code indicates that training to satisfy this requirement is normally provided through OJT

CDC column. The use of proficiency coding indicates the level of knowledge training provided by the CDCs, The CDC column will now identify the subject knowledge level covered in the CDC. Information pertaining to the meaning of the code can be located in the CTG coding system table.

CFETP versus AFJQS task coding. AFJQSs/AFQTPs annotated in the CFETP with a “5” or “7” denote the AFJQS is mandatory. Within the AFJQS are individual tasks that are coded either “X” or “X*”. If the tasks are coded “X,” they are mandatory. If coded “X*,” they are duty position specific.

The identification blocks listed below are to be used to list all personnel authorized to sign off tasks in Part II of the CFETP, including automated CFETP's as per AFI 36-2201, Vol 3.

THIS BLOCK IS FOR IDENTIFICATION PURPOSES ONLY Personal Data - Privacy Act of 1974		
PRINTED NAME OF TRAINEE *(Last, First, Middle Initial)*	INITIALS *(Written)*	SSAN
PRINTED NAME OF TRAINER AND WRITTEN INITIALS		
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
1. COMMUNICATIONS-ELECTRONICS (C-E). TR: AFECD, 2E0X1 CFETP, Part I											
1.1. 2E0X1 career field	-					A	-	-	-	-	-
1.2. Major systems	-					A	-	-	-	-	-
1.3. Explain the duties, responsibilities and progression in assigned Air Force Specialty (AFS).	5					-	-	-	A	-	-
1.4. Read CFETP 2E0X1 Part I.	5					-	-	-	-	-	-
2. OPERATIONAL RISK MANAGEMENT (ORM) AND SAFETY. TR: AFI 91-301											
2.1. ORM	-					A	-	-	-	-	-
2.2. AFOSH	-					A	-	-	-	-	-
2.3. Common 2E0X1 career field safety hazards	5					A	-	-	-	-	-
2.4. Practice safety precautions:											
2.4.1. Maintenance actions	5					2b	-	-	-	-	-
2.4.2. Energized equipment	5					2b	-	-	-	-	-
3. SECURITY.											
3.1. Security classifications	5					A	-	-	-	-	-
3.2. General security concerns	5					A	-	-	-	-	-
4. TECHNICAL DATA.											
4.1. Technical publications	5					A	-	-	-	-	-
4.2. Commercial Manuals	5					A	-	-	-	-	-
5. MAINTENANCE MANAGEMENT OF C-E SYSTEMS. TR: AFI 21-116, AFI 36-2201, volume 3											
5.1. Maintenance Management Policies:											
5.1.1. Equipment Readiness.	5					-	-	-	A	-	-
5.1.2. Maintenance Staffing and Utilization.	7					-	-	-	A	-	-
5.1.3. Maintenance Training.	5					-	-	-	A	-	-
5.1.4. Communications Standardization and Evaluation Program (CSEP).	5					-	-	-	A	-	-
5.1.5. Maintenance Information Systems (MIS).	-					-	-	-	A	-	-
5.1.6. Assigned Maintenance Responsibilities.	5					-	-	-	A	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
5.1.7. Categories Of Maintenance Organizations.	-					-	-	-	A	-	-
5.1.8. Maintenance Operations Center (MOC).	5					-	-	-	A	-	-
5.1.9. Quality Assurance (QA).	5					-	-	-	A	-	-
5.1.10. Materiel Control.	5					-	-	-	A	-	-
5.1.11. Maintenance Production Work Centers.	5					-	-	-	A	-	-
5.1.12. Deployed Maintenance Management.	5					-	-	-	A	-	-
5.2. Preventive maintenance inspections	5					A	-	-	-	-	-
5.3. Equipment status reporting	5					A	-	-	-	-	-
5.4. Documenting maintenance data	5					B	-	-	-	-	-
5.4.1. Input maintenance data	5					-	-	-	-	-	-
5.5. Logistics support	5					A	-	-	A	-	-
5.6. Locate parts information	5					-	-	-	-	-	-
6. TEST EQUIPMENT. TR: TO 33K-1-100, Applicable test equipment technical orders											
6.1. Purpose:											
6.1.1. Analog oscilloscope.	-					-	-	-	A	-	-
6.1.2. Digital oscilloscope.	-					-	-	-	A	-	-
6.1.3. Spectrum analyzer.	-					-	-	-	A	-	-
6.1.4. Analog multimeter.	-					-	-	-	A	-	-
6.1.5. Digital multimeter.	-					-	-	-	A	-	-
6.1.6. Power meter.	-					-	-	-	A	-	-
6.1.7. Optical time domain reflectometer.	-					-	-	-	A	-	-
6.1.8. Time domain reflectometer.	-					-	-	-	A	-	-
6.1.9. Bit error rate test set.	-					-	-	-	A	-	-
6.1.10. RF signal generator.	-					-	-	-	A	-	-
6.1.11. Frequency counter.	-					-	-	-	A	-	-
6.1.12. Insulation test set.	-					-	-	-	A	-	-
6.1.13. Dummy Load.	-					-	-	-	-	-	-
6.1.14. Wattmeter.	-					-	-	-	-	-	-
6.1.15. Audio Oscillator.	-					-	-	-	-	-	-
6.1.16. Communications System Analyzer.	-					-	-	-	-	-	-
6.1.17. RMS Voltmeter.	-					-	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
6.1.18. Distortion Analyzer.	-					-	-	-	-	-	-
6.1.19. Earth Ground Tester.	-					-	-	-	-	-	-
6.2. Use:											
6.2.1. Analog oscilloscope.	5*					2b	-	-	-	-	-
6.2.2. Digital oscilloscope.	5*					-	-	-	-	-	-
6.2.3. Spectrum analyzer.	5*					2b	-	-	-	-	-
6.2.4. Analog multimeter.	5*					-	-	-	-	-	-
6.2.5. Digital multimeter.	5*					2b	-	-	-	-	-
6.2.6. Power meter.	5*					2b	-	-	-	-	-
6.2.7. Optical time domain reflectometer.	5*					-	-	-	-	-	-
6.2.8. Time domain reflectometer.	5*					-	-	-	-	-	-
6.2.9. Bit error rate test set.	5*					-	-	-	-	-	-
6.2.10. Signal generator.	5*					2b	-	-	-	-	-
6.2.11. Frequency counter.	5*					2b	-	-	-	-	-
6.2.12. Insulation test set.	5*					-	-	-	-	-	-
6.2.13. Dummy Load.	5*					-	-	-	-	-	-
6.2.14. Wattmeter.	5*					-	-	-	-	-	-
6.2.15. Audio Oscillator.	5*					-	-	-	-	-	-
6.2.16. Communications System Analyzer.	5*					-	-	-	-	-	-
6.2.17. RMS Voltmeter.	5*					-	-	-	-	-	-
6.2.18. Distortion Analyzer.	5*					-	-	-	-	-	-
6.2.19. Earth Ground Tester.	5*					-	-	-	-	-	-
7. STANDARD MAINTENANCE PRACTICES. TR: TOs 00-25-234, 31-10-7, 31-10-11, 31-10-13, 31-10-24, 31W-1-102, 31-141-1 volume 1, 31W2-4-330 series, and 31W3-10-20, TIA/EIA-568A & 569; AFI 32-1065, AFJQS 2EXXX-202B, MIL-STD 2000A, American Public Works Association Policy and American National Standard Institute Standard (ANSI) Z53.1											
7.1. State facts related to the following practices:											
7.1.1. Installation.	-					-	-	-	A	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
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		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
7.1.2. Configuration.	-					-	-	-	A	-	-
7.1.3. Interconnection.	-					-	-	-	A	-	-
7.1.4. Inspection.	-					-	-	-	A	-	-
7.1.5. Basic troubleshooting techniques.	-					A	-	-	-	-	-
7.1.6. Marking and identifying underground utilities.	-					-	-	-	A	-	-
7.1.7. EMSEC suppression techniques.	5					-	-	-	A	-	-
7.1.8. Cable labeling and installation documentation.	5					-	-	-	A	-	-
7.1.9. Wire color-coding standards.	5					-	-	-	A	-	-
7.1.10. Fiber optics installation concepts.	5					-	-	-	A	-	-
7.1.11. Concepts of:											
7.1.11.1. Grounding.	5					A	-	-	A	-	-
7.1.11.2. Bonding.	5					A	-	-	A	-	-
7.1.11.3. Shielding.	5					A	-	-	A	-	-
7.1.11.4. Lightning protection.	7					A	-	-	A	-	-
7.1.11.5. Electro-Static Discharge (ESD)	5					A	-	-	-	-	-
7.1.12. Equipment Familiarization.											
7.1.12.1. Locate elements.											
7.1.12.1.1. Alpha-numerics.	-					-	-	-	-	-	-
7.1.12.1.2. Visual inspection.	-					-	-	-	-	-	-
7.1.13. Remove or install equipment grounds.	5					-	-	-	-	-	-
7.1.14. Check quality of equipment grounds.	5					-	-	-	-	-	-
7.1.15. Check quality of lightning protection system.	5					-	-	-	-	-	-
8. COMMUNICATIONS PRINCIPLES. TR: TO 31-1-141 Series											
8.1. State facts relating to the following:											
8.1.1. Amplitude Modulation (AM).	-					-	-	-	A	-	-
8.1.2. Frequency Modulation (FM).	-					-	-	-	A	-	-
8.1.3. Phase Modulation (PM).	-					-	-	-	A	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
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		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
8.1.4. Pulse Code Modulation (PCM).	-					-	-	-	A	-	-
8.1.5. Bandwidth.	-					-	-	-	A	-	-
8.1.6. Lightwave communications.	-					-	-	-	A	-	-
8.1.7. Asynchronous/synchronous communication modes.	-					-	-	-	A	-	-
8.1.8. Error detection and correction.	-					-	-	-	A	-	-
9. AIR FORCE COMPUTER BASED TRAINING. (Note 1) TR: https:// www.my.af.mil/ (Select "IT ELearning" link under *Top Viewed: Training*)											
9.1. 2EXXX Core Fundamentals Training Tracks:											
9.1.1. Introduction to Telecommunications (72111 ENG).	5					-	-	-	-	-	-
9.1.2. Introduction to Signals and Signal Transmission (84650 ENG).	5					-	-	-	-	-	-
9.1.3. Introduction to Communications Methods and Equipment (110725 ENG).	5					-	-	-	-	-	-
9.1.4. Networking Essentials (31843 ENG).	5					-	-	-	-	-	-
9.1.5. Create Your Time and Memory Management Program (PD0124 ENG).	5					-	-	-	-	-	-
9.1.6. Introduction to WAN Technologies (110726 ENG).	5					-	-	-	-	-	-
10. EXPEDITIONARY COMMUNICATIONS CONCEPTS. TR: https://aef.afpc.randolph.af.mil											
10.1. Air and Space Expeditionary Force (AEF) deployment process. TR: AFI 10-401	5					A	-	-	A	-	-
10.2. Unit Type Codes (UTC) and Force Packaging as it relates to the AEF tasking process. TR: AFI 10-401;	5					A	-	-	A	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
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		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
10.3. Deployment procedures: TR: AFMAN 10-100; MAJCOM and Local Directives											
10.3.1. Pre-deployment.	5					-	-	-	A	-	-
10.3.2. Employment.	5					-	-	-	A	-	-
10.3.3. Post deployment.	5					-	-	-	A	-	-
10.3.4. Recovery.	5					-	-	-	A	-	-
10.4. Mobility procedures: TR: AFI 10-403, applicable MAJCOM directives and local guidance											
10.4.1. Pre-deployment inspections.	5*					-	-	-	-	-	-
10.4.2. Air mobility equipment preparation.	5*					-	-	-	-	-	-
10.4.3. Road mobility equipment preparation.	5*					-	-	-	-	-	-
10.4.4. Post-deployment turn around.	5*					-	-	-	-	-	-
11. TYPICAL DEPLOYABLE C-E MISSIONS. TR: AFMAN 10-100, MAJCOM and Local Directives											
11.1. Deployable C-E missions:											
11.1.1. Theater Deployable Communications (TDC).	-					-	-	-	A	-	-
11.1.2. Deployable Air Traffic Control Systems (DATCALS).	-					-	-	-	A	-	-
11.1.3. Engineering & Installation.	-					-	-	-	A	-	-
11.1.4. C4ISR Platforms.	-										
11.1.4.1. Air Operations Centers.	-					-	-	-	A	-	-
11.1.4.2. Battlefield Control System.	-					-	-	-	A	-	-
11.1.4.3. Air Support Operations Squadrons.	-					-	-	-	A	-	-
11.1.4.4. Airborne Platforms.	-					-	-	-	A	-	-
11.1.4.5. Unmanned Aerospace Vehicles (UAVs)	-					-	-	-	A	-	-

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		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
12. ELECTRONIC COMBAT. TR: AFI 10-706 and AFP 51-45											
12.1. Electronic combat phenomenon as it applies to/impacts radar systems.	5					-	-	-	A	-	-
12.2. Concepts of electronic attack (EA).	5					-	-	-	A	-	-
12.3. Concepts of electronic warfare support (ES).	5					-	-	-	A	-	-
12.4. Concepts of electronic protection (EP).	5					-	-	-	A	-	-
13. ELECTRICAL POWER SYSTEMS. TR: Commercial Manuals											
13.1. Types of uninterruptible power supplies:											
13.1.1. Batteries.	-					-	-	-	A	-	-
13.1.2. Switched electrical power systems.	-					-	-	-	A	-	-
13.2. Types of generators:						-	-	-		-	-
13.2.1. Fixed.	-					-	-	-	A	-	-
13.2.2. Deployable.	-					-	-	-	A	-	-
14. AFSC SPECIFIC TEST EQUIPMENT. TR: TOs 33D7-14-9-1, 33D7-44-225-1											
14.1. Sweep Generator.	5*					-	-	-	-	-	-
14.2. Pulse Generator.	5*					2b	-	-	-	-	-
14.3. Wavemeter.	5*					2b	-	-	-	-	-
14.4. Video Signal Processor Test Set, TPM-32.	5*					2b	-	-	-	-	-
14.5. Crystal Detector.	5*					2b	-	-	-	-	-
14.6. Attenuator.	5*					2b	-	-	-	-	-
14.7. Modulator.	5*					2b	-	-	-	-	-
14.8. IFF/SIF Radar Test Set, TPM-25.	5*					-	-	-	-	-	-
14.9. Radar Test Set, AN/UPM-145.	5*					2b	-	-	-	-	-
14.10. IFF/SIF Radar Test Set, AN/UPM-155.	5*					2b	-	-	-	-	-
14.11. Noise Figure Meter.	5*					-	-	-	-	-	-

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		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
14.12. Gigatronics Peak Power Sensor.	5*					-	-	-	-	-	-
14.13. Network Analyzer.	5*					-	-	-	-	-	-
14.14. Weinschel AS-18, Step Attenuator.	5*					-	-	-	-	-	-
14.15. Monopulse Beacon Test Set w/Laptop.	5*					-	-	-	-	-	-
14.16. Diode Detector.	5*					-	-	-	-	-	-
14.17. NARDA Survey Meter 8712.	5*					-	-	-	-	-	-
14.18. NARDA Isotropic Electronic Probe 8712D.	5*					-	-	-	-	-	-
14.19. Fluke Fiber Optic Meter FOM.	5*					-	-	-	-	-	-
14.20. Fluke OneTouch Series II LAN Analyzer.	5*					-	-	-	-	-	-
14.21. Minolta Color Analyzer - CA-100.	5*					-	-	-	-	-	-
14.22. Sony Monitor Remote Controller RM-10.	5*					-	-	-	-	-	-
14.23. Maintenance Laptop (STARS).	5*					-	-	-	-	-	-
14.24. Maintenance Laptop (DASR).	5*					-	-	-	-	-	-
15. BASIC ELECTRONIC PRINCIPLES. TR: TOs 31-1-141-1 thru 31-1-141-14											
15.1. Operating characteristics:											
15.1.1. Silicon Controlled Rectifier (SCR).	-					A	-	-	-	-	-
15.1.2. Tunnel diode.	-					A	-	-	-	-	-
15.1.3. Positive Intrinsic Negative (PIN) diode.	-					A	-	-	-	-	-
15.1.4. Electron tubes.	-					A	-	-	-	-	-
15.1.5. Amplifiers.	-					A	-	-	-	-	-
15.1.6. Limiter circuits.	-					A	-	-	-	-	-
15.1.7. Clamper circuits.	-					A	-	-	-	-	-
15.1.8. Pulse modulated transmitters.	-					A	-	-	-	-	-
15.1.9. Pulse modulated receivers.	-					A	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
16. NETWORKING TR: Applicable Commercial Manuals											
16.1. Types.	-					A	-	-	-	-	-
16.2. Topologies.	-					A	-	-	-	-	-
16.3. Transmission media.	-					A	-	-	-	-	-
16.4. Network hardware:	-						-	-	-	-	-
16.4.1. Router.	-					A	-	-	-	-	-
16.4.2. Switch.	-					A	-	-	-	-	-
16.4.3. Bridge.	-					A	-	-	-	-	-
16.4.4. Network Interface Card (NIC).	-					A	-	-	-	-	-
16.5. Network Protocols:											
16.5.1. Transmission Control Protocol/ Internet Protocol (TCP/IP).	-					A	-	-	-	-	-
16.5.2. Network addressing.	-					A	-	-	-	-	-
16.6. Domain Name Service (DNS).	-					A	-	-	-	-	-
16.7. Perform network administration.	-					-	-	-	-	-	-
16.8. Perform Local Area Network (LAN) maintenance.	-					-	-	-	-	-	-
17. UNIX OPERATING SYSTEM. TR: Applicable Commercial Manuals											
17.1. Characteristics.	-					A	-	-	A	-	-
17.2. Commands:											
17.2.1. Operating.	-					-	-	-	-	-	-
17.2.2. File system structure.	-					-	-	-	-	-	-
17.2.3. Vi editor.	-					-	-	-	-	-	-
17.2.4. Remote system.	-					-	-	-	-	-	-
17.2.5. System monitoring.	-					-	-	-	-	-	-
17.3. UNIX system administration:											
17.3.1. System administration	-					-	-	-	-	-	-
17.3.2. File system administration.	-					-	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
17.3.3. System user account administration.	-					-	-	-	-	-	-
18. BASIC RADAR FUNDAMENTALS. TR: TO 31-1-141-9											
18.1. Typical Radar Systems:											
18.1.1. Principles.	-					A	-	-	-	-	-
18.1.2. Frequency characteristics.	-					A	-	-	-	-	-
18.1.3. Major assemblies.	-					A	-	-	-	-	-
18.1.4. Major subassemblies.	-					A	-	-	-	-	-
18.1.5. RF devices.	-					A	-	-	-	-	-
18.1.6. Performance Monitors/Built-in Test equipment (BITE).	-					A	-	-	-	-	-
19. ADVANCED RADAR PRINCIPLES. TR: AFQTP 2E0X1-207C											
19.1. Antenna types.	7					-	-	-	-	-	-
19.2. Radiation patterns and properties.	7					-	-	-	-	-	-
19.3. Propagation anomalies.	7					-	-	-	-	-	-
20. RADAR FLIGHT SAFETY. TR: AFMAN 11-225											
20.1. ATC System:											
20.1.1. Flight check requirements.	5*					A	-	-	-	-	-
20.1.2. Safety of flight issues.	5*					A	-	-	-	-	-
20.2. Facility certification:											
20.2.1. Initial.	5*					A	-	-	-	-	-
20.2.2. Recurring.	5*					A	-	-	-	-	-
21. AN/TPN-19, LANDING CONTROL CENTRAL. TR: TO 31P5-2TPN24-2 and 31P5-2TPN25-2											
21.1. Theory of operation.	5*					A	-	-	-	-	-
21.2. Capabilities and limitations.	5*					A	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
21.3. AN/TPN-19 system operation:											
21.3.1. Airport Surveillance Radar (ASR).	5*					-	-	-	A	-	-
21.3.2. Precision Approach Radar (PAR).	5*					-	-	-	A	-	-
21.3.3. OK-235/236 Operational Shelters.	5*					-	-	-	A	-	-
21.4. Antenna Orientation:											
21.4.1. ASR.	5*					-	-	-	-	-	-
21.4.2. PAR.	5*					-	-	-	-	-	-
21.5. Roles in the operational theater.	5					A	-	-	-	-	-
22. AN/MPN-14K, LANDING CONTROL CENTRAL. TR: TO 31P5-2MPN14-22											
22.1. Theory of operation.	-					A	-	-	-	-	-
22.2. Capabilities and limitations.	-					A	-	-	-	-	-
22.3. ASR:											
22.3.1. Timing system.	5*					-	-	-	-	-	-
22.3.2. Transmitter.	5*					-	-	-	-	-	-
22.3.3. Antenna and RF transmission devices.	5*					-	-	-	-	-	-
22.3.4. Receiver.	5*					-	-	-	-	-	-
22.3.5. Video processing.	5*					-	-	-	-	-	-
22.3.6. Remoting and control.	5*					-	-	-	-	-	-
22.4. PAR:											
22.4.1. Timing system.	5*					-	-	-	-	-	-
22.4.2. Transmitter.	5*					-	-	-	-	-	-
22.4.3. Antenna and RF transmission devices.	5*					-	-	-	-	-	-
22.4.4. Receiver.	5*					-	-	-	-	-	-
22.4.5. Video processing.	5*					-	-	-	-	-	-
22.4.6. Remoting and control.	5*					-	-	-	-	-	-
22.5. Antenna Orientation:											
22.5.1. ASR.	5*					-	-	-	-	-	-
22.5.2. PAR.	5*					-	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
22.6. Role in the operational theater.	-					A	-	-	-	-	-
23. WEATHER RADAR SYSTEMS. TR: AFTO 31P1-4-108-1											
23.1. WSR-88D Next Generation Radar (NEXRAD):											
23.1.1. Theory of operation	-					A	-	-	-	-	-
23.1.2. Capabilities and limitations.	-					A	-	-	-	-	-
23.1.3. Role in the overall National Weather Service mission.	5					A	-	-	-	-	-
23.2. AN/FMQ-18 Tactical Weather Radar (TWR):											
23.2.1. Theory of operation.	5*					-	-	-	-	-	-
23.2.2. Capabilities and limitations.	5*					-	-	-	-	-	-
23.2.3. Role in the Air Force weather mission.	5					-	-	-	-	-	-
24. AN/GPN-20 AIRPORT SURVEILLANCE RADAR. TR: TOs 31P5-2GPN-20-2, 31P5-2GPN21-2											
24.1. Theory of operation.	-					A	-	-	B	-	-
24.2. Capabilities and limitations.	-					A	-	-	A	-	-
24.3. Isolate malfunction.	-					2b	-	-	-	-	-
24.4. Power distribution:											
24.4.1. Theory of operation.	5*					A	-	-	B	-	-
24.4.2. Capabilities and limitations.	5*					A	-	-	A	-	-
24.4.3. Turn-on and Turn-off.	5*					2b	-	-	-	-	-
24.5. Low Voltage Power Supply (LVPS):											
24.5.1. Theory of operation.	5*					A	-	-	-	-	-
24.5.2. Capabilities and limitations.	5*					A	-	-	-	-	-
24.5.3. Verify operation:											
24.5.3.1. Preregulator.	-					2b	-	-	-	-	-
24.5.4. Align LVPS:											

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
24.5.4.1. 24 Volt preregulator power supply.	-					2b	-	-	-	-	-
24.5.4.2. Receiver power supply (NOTE: 14).	-					2b	-	-	-	-	-
24.5.4.3. Processor power supply.	-					-	-	-	-	-	-
24.6. Magnetron Transmitter:											
24.6.1. Theory of operation.	5*					A	-	-	B	-	-
24.6.2. Capabilities and limitations.	5*					A	-	-	A	-	-
24.6.3. Verify operation:											
24.6.3.1. RF Power out.	-					2b	-	-	-	-	-
24.6.3.2. Frequency.	-					2b	-	-	-	-	-
24.6.3.3. Filament voltage.	-					2b	-	-	-	-	-
24.6.4. Align Transmitter:											
24.6.4.1. Filament voltage (Core Bias).	-					2b	-	-	-	-	-
24.6.5. Isolate malfunction.	-					2b	-	-	-	-	-
24.6.6. Remove and replace:											
24.6.6.1. De-Qing Control Assembly.	-					-	-	-	-	-	-
24.7. Receivers.											
24.7.1. Normal Receiver:											
24.7.1.1. Theory of operation.	5*					A	-	-	B	-	-
24.7.1.2. Capabilities and limitations.	5*					A	-	-	A	-	-
24.7.1.3. Verify operation:											
24.7.1.3.1. STALO.	-					-	-	-	-	-	-
24.7.1.3.2. Normal IF.	-					-	-	-	-	-	-
24.7.1.3.3. Automatic frequency control (AFC).	-					2b	-	-	-	-	-
24.7.1.3.4. Minimum Discernable Signal (MDS).	-					-	-	-	-	-	-
24.7.1.4. Align normal receiver:											
24.7.1.4.1. Preamplifier.	-					-	-	-	-	-	-
24.7.2. MTI Receiver:											
24.7.2.1. Theory of operation.	5*					A	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
24.7.2.2. Capabilities and limitations.	5*					A	-	-	-	-	-
24.7.2.3 Verify operation:											
24.7.2.3.1. MTI I & Q.	-					2b	-	-	-	-	-
24.7.2.3.2. MTI test generator.	-					-	-	-	-	-	-
24.7.2.4. Align MTI receiver:											
24.7.2.4.1. Locked COHO.	-					2b	-	-	-	-	-
24.7.2.4.2. MTI test generator.	-					2b	-	-	-	-	-
24.7.3. Isolate malfunction(s).	-					2b	-	-	-	-	-
24.7.4. Remove and replace:											
24.7.4.1. LVPS.	-					-	-	-	-	-	-
24.8. Video Processor:											
24.8.1. Theory of operation.	5*					A	-	-	-	-	-
24.8.2. Capabilities and limitations.	5*					A	-	-	-	-	-
24.8.3. Digital Timing:											
24.8.3.1. Theory of operation.	-					A	-	-	-	-	-
24.8.3.2. Capabilities and limitations.	-					A	-	-	-	-	-
24.8.4. Verify operation:											
24.8.4.1. Synchronizer.	-					2b	-	-	-	-	-
24.8.4.2. System video level.	-					-	-	-	-	-	-
24.8.4.3. MTI cancellation.	-					-	-	-	-	-	-
24.8.5. Align video processor:											
24.8.5.1. Video gain and balance	-					2b	-	-	-	-	-
24.8.6. Isolate malfunction.	-					-	-	-	-	-	-
24.8.7. Remove and replace.	-					-	-	-	-	-	-
24.9. Feedhorn Antenna System:											
24.9.1. Theory of operation.	5*					A	-	-	B	-	-
24.9.2. Capabilities and limitations.	5*					A	-	-	A	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
24.9.3. Preventive maintenance.											
24.9.3.1. 7-day inspection.	-					-	-	-	-	-	-
24.9.3.2. Voltage Standing Wave Ratio (VSWR).	-					2b	-	-	-	-	-
24.10. Remoting and Control Circuits:											
24.10.1. Theory of operation.	5*					A	-	-	B	-	-
24.10.2. Capabilities and limitations.	5*					A	-	-	A	-	-
25. SECONDARY SURVEILLANCE RADAR (SSR) SYSTEMS. TR: TO 31P4-2TPX-42-2; TO 31P4-2TPX-42-22; TO 31P4-2T-12; TO 31P4-2T-22; TO 31P4-2T-32; TO 31P4-2T-42; TO 31P4-2T-52; TO 31P4-2T-62; TO 31P4-2T-72; TO 31P4-2T-82; TO 31P4-2T-92; TO 31P4- 2T-112; TO 33D7-24-13-2; TO 33D7-14-9-14											
25.1. AN/TPX-42:											
25.1.1. Theory of operation.	5*					A	-	-	B	-	-
25.1.2. Capabilities and limitations.	5*					A	-	-	A	-	-
25.1.3. Fault isolation to an LRU.	-					2b	-	-	-	-	-
25.1.4. Verify operation:											
25.1.4.1. System test.	-					2b	-	-	-	-	-
25.1.4.2. Transmitter power out.	-					2b	-	-	-	-	-
25.1.5. Align SSR:											
25.1.5.1. BST delay.	-					2b	-	-	-	-	-
25.1.5.2. Range error.	-					2b	-	-	-	-	-
25.1.5.3. Low power out and low power monitor.	-					2b	-	-	-	-	-
25.1.5.4. Input video threshold and bracket video amplitude.	-					2b	-	-	-	-	-
25.1.5.5. Video line amplifier line compensation.	-					2b	-	-	-	-	-
25.1.5.6. Receiver video pulse amplitude, width and level.	-					2b	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
25.1.6. Automation systems											
25.2. AN/UPX-37:											
25.2.1. Theory of operation.	5*					A	-	-	B	-	-
25.2.2. Capabilities and limitations.	5*					A	-	-	A	-	-
25.2.3. Isolate malfunction.	-					-	-	-	-	-	-
25.2.4. Verify operation.	-					-	-	-	-	-	-
25.3. MSSR:											
25.3.1. Theory of operation.	5*					A	-	-	B	-	-
25.3.2. Capabilities and limitations.	5*					A	-	-	A	-	-
25.3.3. Isolate malfunction.	-					-	-	-	-	-	-
25.3.4. Verify operation.	-					-	-	-	-	-	-
26. PROGRAMMABLE INDICATOR DATA PROCESSOR (PIDP) II. TR: TO 31P4-2TPX42-52											
26.1. Theory of operation.	5*					A	-	-	B	-	-
26.2. Capabilities and limitations.	5*					A	-	-	A	-	-
26.3. OD-153 Indicator:											
26.3.1. Theory of operation.	-					A	-	-	B	-	-
26.3.2. Capabilities and limitations.	-					A	-	-	A	-	-
26.3.3. Verify operation:											
26.3.3.1. Front panel controls.	-					2b	-	-	-	-	-
26.3.3.2. C-box.	-					2b	-	-	-	-	-
26.3.3.3. Keyboard.	-					2b	-	-	-	-	-
26.3.3.4. Position entry module (PEM).	-					2b	-	-	-	-	-
26.3.4. Align OD-153:											
26.3.4.1. Video mixer/amplifier.	-					2b	-	-	-	-	-
26.3.4.2. Video amplifier.	-					2b	-	-	-	-	-
26.3.4.3. Symbol/character.	-					2b	-	-	-	-	-
26.3.4.4. Major deflection.	-					2b	-	-	-	-	-
26.3.5. Isolate malfunction.	-					2b	-	-	-	-	-
26.3.6. Remove and replace:											

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
26.3.6.1. Deflection Amplifier.	-					-	-	-	-	-	-
27. DIGITAL BRIGHT RADAR INDICATOR TOWER EQUIPMENT (DBRITE). TR: TO 31P5-4-6-1; 31P5-4-7-1											
27.1. Theory of operation.	-					A	-	-	B	-	-
27.2. Capabilities and limitations.	-					A	-	-	A	-	-
27.3. Verify operation:											
27.3.1. Initial switch settings.	-					-	-	-	-	-	-
27.3.2. Off-line BIT.	-					-	-	-	-	-	-
27.4. Align DBRITE:											
27.4.1. Video preamplifier.	-					-	-	-	-	-	-
27.4.2. Video sync.	-					-	-	-	-	-	-
27.4.3. Video driver.	-					-	-	-	-	-	-
27.4.4. Deflection and Focus/Linearity.	-					-	-	-	-	-	-
28. PRECISION APPROACH RADAR. TR: 31P5-2GPN-22-2											
28.1. AN/GPN-22:											
28.1.1. Theory of operation.	5*					A	-	-	B	-	-
28.1.2. Capabilities and limitations.	5*					A	-	-	A	-	-
28.2. Power distribution:											
28.2.1. Theory of operation.	-					A	-	-	B	-	-
28.2.2. Capabilities and limitations.	-					A	-	-	A	-	-
28.3. Target Data Computer (TDC):											
28.3.1. Theory of operation.	-					A	-	-	B	-	-
28.3.2. Capabilities and limitations.	-					A	-	-	A	-	-
28.3.3. Verify TDC operation:											
28.3.3.1. TDC glide slope and decision height fault indicator.	-					-	-	-	-	-	-
28.3.3.2. TDC performance test standards.	-					-	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
28.4. Traveling Wave Tube (TWT) transmitter:											
28.4.1. Theory of operation.	5*					A	-	-	B	-	-
28.4.2. Capabilities and limitations.	5*					A	-	-	A	-	-
28.5. High Voltage Power Supply (HVPS) circuitry:											
28.5.1. Theory of operation.	-					A	-	-	B	-	-
28.5.2. Capabilities and limitations.	-					A	-	-	A	-	-
28.5.3. Verify HVPS operation:											
28.5.3.1. Performance Tests of Transmitter 1A201.	-					-	-	-	-	-	-
28.5.4. Align HVPS circuitry:											
28.5.4.1. Operating Voltages and Collector Current.	-					2b	-	-	-	-	-
28.5.5. Verify TWT transmitter operation:											
28.5.5.1. Daily inspections/Performance tests.	-					2b	-	-	-	-	-
28.5.6. Align TWT transmitter circuits:											
28.5.6.1. Fault Thresholds.	-					2b	-	-	-	-	-
28.5.6.2. AC Source.	-					2b	-	-	-	-	-
28.5.6.3. Operating Voltages and Collector Current.	-					2b	-	-	-	-	-
28.5.6.4. Timing.	-					2b	-	-	-	-	-
28.5.7. Isolate malfunction.	-					2b	-	-	-	-	-
28.6. Receiver:											
28.6.1. Theory of operation.	-					A	-	-	B	-	-
28.6.2. Capabilities and limitations.	-					A	-	-	A	-	-
28.6.3. Timing:											
28.6.3.1. Theory of operation.	-					-	-	-	-	-	-
28.6.3.2. Capabilities and limitations.	-					-	-	-	-	-	-
28.6.4. Range and angle tracking:											

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
28.6.4.1. Theory of operation.	-					-	-	-	-	-	-
28.6.4.2. Capabilities and limitations.	-					-	-	-	-	-	-
28.6.5. BITE:											
28.6.5.1. Theory of operation.	-					-	-	-	-	-	-
28.6.5.2. Capabilities and limitations.	-					-	-	-	-	-	-
28.6.6. Verify receiver operation:											
28.6.6.1. Front panel.	-					2b	-	-	-	-	-
28.6.6.2. Receiver malfunction.	-					-	-	-	-	-	-
28.6.6.3. Code verification.	-					-	-	-	-	-	-
28.6.7. Align receiver:											
28.6.7.1. Chirp range track timing.	-					2b	-	-	-	-	-
28.6.7.2. False alarm rate.	-					2b	-	-	-	-	-
28.6.7.3. AZ/EL zero bias.	-					2b	-	-	-	-	-
28.6.8. Isolate malfunction.	-					2b	-	-	-	-	-
28.7. Digital Moving Target Indicator (DMTI):											
28.7.1. Theory of operation.	-					A	-	-	B	-	-
28.7.2. Capabilities and limitations.	-					A	-	-	A	-	-
28.7.3. Verify DMTI operation.	-					-	-	-	-	-	-
28.8. Antenna System:											
28.8.1. Theory of operation	5*					A	-	-	B	-	-
28.8.2. Capabilities and limitations	5*					A	-	-	A	-	-
28.8.3. Verify antenna beam position control unit (ABPCU) operation:											
28.8.3.1. Proper system operation test.	-					2b	-	-	-	-	-
28.8.3.2. Phase shifter test procedures.	-					2b	-	-	-	-	-
28.8.4. Align the antenna:											
28.8.4.1. Vertical sensor.	-					-	-	-	-	-	-
28.8.5. Isolate malfunction.	-					2b	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
28.9. Remoting and Control Circuits:											
28.9.1. Theory of operation.	-					A	-	-	B	-	-
28.9.2. Capabilities and limitations.	-					A	-	-	A	-	-
28.9.3. Verify operation:											
28.9.3.1. Power supplies and alarm circuits.	-					-	-	-	-	-	-
28.9.3.2. Supervisory control multiplexer-demultiplexer.	-					2b	-	-	-	-	-
28.9.3.3. Digital to digital converter.	-					2b	-	-	-	-	-
28.9.4. Align remoting and control circuits:											
28.9.4.1. Video/multitrigger combiner.	-					2b	-	-	-	-	-
28.9.4.2. AM modulator.	-					2b	-	-	-	-	-
28.9.4.3. 3-channel AM modulator.	-					2b	-	-	-	-	-
28.9.4.4. Dual transmit distribution amplifier.	-					2b	-	-	-	-	-
28.9.4.5. AM Demodulator.	-					2b	-	-	-	-	-
28.9.4.6. 3-Channel AM demodulator.	-					2b	-	-	-	-	-
28.9.4.7. Video multitrigger separator.	-					2b	-	-	-	-	-
28.9.5. Isolate malfunction.	-					2b	-	-	-	-	-
28.10. Display:											
28.10.1. Theory of operation.	5*					A	-	-	B	-	-
28.10.2. Capabilities and limitations.	5*					A	-	-	A	-	-
28.10.3. Describe the theory, capabilities and limitations of the refresh memory.	-					-	-	-	-	-	-
28.10.4. Verify indicator operation.	-					-	-	-	-	-	-
28.10 5. Align indicator.	-					-	-	-	-	-	-
28.11. System Maintenance:											
28.11.1. Turn-on and turn-off.	-					b	-	-	-	-	-
28.11.2. Preventive maintenance routines:											

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
28.11.2.1. System performance assessment (SPA).	-					2b	-	-	-	-	-
28.11.2.2. Minimum Discernable Signal (MDS).	-					2b	-	-	-	-	-
28.11.2.3. Transmitter power output and pulse characteristics.	-					2b	-	-	-	-	-
28.11.2.4. Split pulse and chirp frequency check.	-					2b	-	-	-	-	-
28.11.3. Isolate malfunction.	-					2b	-	-	-	-	-
29. AN/GPN-30 DIGITAL AIRPORT SURVEILLANCE RADAR (DASR) SYSTEM. TR: 6310.30 Maintenance Handbook for Airport Surveillance Radar, ASR-11 Facilities											
29.1. Theory of operation.	5*					A	-	-	B	-	-
29.2. Capabilities and limitations.	5*					A	-	-	A	-	-
29.3. System Maintenance:											
29.3.1. Power-on and power-off.	-					b	-	-	-	-	-
29.4. Verify Operation:											
29.4.1. Verify key system parameters.	-					b	-	-	-	-	-
29.4.2. Voltage Standing Wave Ratio (VSWR).	-					-	-	-	-	-	-
29.4.3. Feeder cable phasing (NOTE: 15).	-					2b	-	-	-	-	-
29.4.4. Feeder cable insertion loss (NOTE: 15).	-					2b	-	-	-	-	-
29.4.5. Align system encoders.	-					-	-	-	-	-	-
30. AN/FSQ-204 STANDARD TERMINAL AUTOMATION REPLACEMENT SYSTEM (STARS). **TR:** Interactive Electronic Technical Manual (IETM)											
30.1. Theory of operation.	5*					A	-	-	B	-	-
30.2. Capabilities and limitations.	5*					A	-	-	A	-	-
30.3. STARS Operational Sites (SOS):											

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
30.3.1. National Airspace System (NAS) Roles.	-					A	-	-	A	-	-
30.3.2. Terminal Automation Subsystem (TAS).	-					A	-	-	A	-	-
30.3.3. Site Support Subsystem (SSS).	-					A	-	-	A	-	-
30.3.4. STARS topology.	-					A	-	-	A	-	-
30.4. Equipment Familiarization.											
30.4.1. Locate equipment.	-					-	-	-	-	-	-
30.4.2. Locate indicators.	-					-	-	-	-	-	-
30.4.3. Locate interconnections.	-					-	-	-	-	-	-
30.5. Terminal Control Workstation / Tower Display Workstation (TCW/TDW):											
30.5.1. Operate workstation.	-					-	-	-	-	-	-
30.6. STARS maintenance administration.	-					-	-	-	-	-	-
30.7. Monitor and Control Workstation (MCW):											
30.7.1. Windows items.	-					-	-	-	-	-	-
30.8. Operate MCW.	-					-	-	-	-	-	-
30.9. STARS System Maintenance:											
30.9.1. Startup/ shutdown.	-					-	-	-	-	-	-
30.9.2. System certification.	-					-	-	-	-	-	-
30.9.3. System backup.	-					-	-	-	-	-	-
30.9.4. Isolate malfunction.	-					-	-	-	-	-	-
30.9.5. Remove and replace.	-					-	-	-	-	-	-
30.10. Data Display Monitor (DDM):											
30.10.1. Theory of operation.	-					A	-	-	B	-	-
30.10.2. Capabilities and limitations.	-					A	-	-	A	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
31. AN/TPS-75 AIRCRAFT CONTROL AND WARNING RADAR SYSTEM. TR: TOs 31P3-2TPS75-2-1; 31P3-2TPS75-2-2; 31P3-2TPS75-6WC-1; 31P3-2TPS75-9; 31P1-2UYQ27-22; 31P1-2UYQ27-26WC-1; 31P1-2UPA59-1-1; 31P4-2UPX27-1; 31P1-2TYQ23-1; 31P1-2TLQ32-1; 31P1-2TLQ32-6WC-1											
31.1. AN/TPS-75:											
31.1.1. Theory of Operation.	5*					A	-	-	B	-	-
31.1.2. Capabilities and Limitations.	5*					A	-	-	A	-	-
31.1.3. Transmitter:											
31.1.3.1. Theory of operation.	-					A	-	-	B	-	-
31.1.3.2. Capabilities and limitations.	-					A	-	-	A	-	-
31.1.3.3. Align transmitter:											
31.1.3.3.1. Timing.	-					2b	-	-	-	-	-
31.1.3.4. Isolate malfunction.	-					2b	-	-	-	-	-
31.1.4. Slotted Waveguide Antenna System:											
31.1.4.1. Theory of operation.	-					A	-	-	B	-	-
31.1.4.2. Capabilities and limitations.	-					A	-	-	A	-	-
31.1.4.3. Verify operation.	-					-	-	-	-	-	-
31.1.4.4. Align antenna.	-					-	-	-	-	-	-
31.1.5. Receiver:											
31.1.5.1. Theory of operation.	-					A	-	-	B	-	-
31.1.5.2. Capabilities and limitations.	-					A	-	-	A	-	-
31.1.5.3. Verify operation:											
31.1.5.3.1. Gains and balances.	-					2b	-	-	-	-	-
31.1.5.4. Align receiver:											
31.1.5.4.1. Gains and balances.	-					2b	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
31.1.5.5. Isolate malfunction.						2b	-	-	-	-	-
31.1.6. Processor:											
31.1.6.1. Theory of operation.	-					A	-	-	-	-	-
31.1.6.2. Capabilities and limitations.	-					A	-	-	-	-	-
31.1.6.3. Verify operation.	-					-	-	-	-	-	-
31.1.6.4. Align processor.	-					-	-	-	-	-	-
31.1.6.5. Isolate malfunction.	-					-	-	-	-	-	-
31.1.7. AN/UPX-27 IFF/SIFF Secondary Radar System.											
31.1.7.1. Theory of operation.	5*					-	-	-	-	-	-
31.1.7.2. Capabilities and limitations.	5*					-	-	-	-	-	-
31.1.7.3. Verify operation.	-					-	-	-	-	-	-
31.1.7.4. Align IFF/SIF.	-					-	-	-	-	-	-
31.1.7.5. Isolate malfunction(s).	-					-	-	-	-	-	-
31.1.8. General System Maintenance:											
31.1.8.1. Turn-on and Turn-off.	-					2b	-	-	-	-	-
31.1.8.2. Verify Operation:											
31.1.8.2.1. Daily PMIs.	-					2b	-	-	-	-	-
31.1.8.3. Isolate malfunction.	-					2b	-	-	-	-	-
31.2. Modular Control Equipment (MCE) Interface Group (MIG).											
31.2.1. Theory of Operation.	-					A	-	-	B	-	-
31.2.2. Capabilities and Limitations.	-					A	-	-	A	-	-
31.3. AN/UPA-59:											
31.3.1. Theory of operation.	-					A	-	-	B	-	-
31.3.2. Capabilities and limitations.	-					A	-	-	A	-	-
31.3.3. Verify operation:											
31.3.3.1. Daily check.	-					2b	-	-	-	-	-
31.4. AN/UYQ-27 Indicator:											
31.4.1. Theory of operation.	-					A	-	-	B	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
31.4.2. Capabilities and limitations.	-					A	-	-	A	-	-
31.4.3. Verify operation:											
31.4.3.1. 7-day inspection.	-					2b	-	-	-	-	-
31.4.4. Align indicator.	-					-	-	-	-	-	-
31.4.5. Isolate malfunction.	-					-	-	-	-	-	-
31.5. AN/TLQ-32 Decoy Set:											
31.5.1. Theory of operation.	-					-	-	-	-	-	-
31.5.2. Capabilities and limitations.	-					-	-	-	-	-	-
31.5.3. Verify operation.	-					-	-	-	-	-	-
31.5.4. Disassemble and assemble.	-					-	-	-	-	-	-
32. DEPLOYMENT CONCEPTS. TR: AFI 10-201, AFI 10-244, AFI 10-401, MAS Requirements Support Division located at: https://www.my.af.mil/											
32.1. Pre-deployment procedures.	-					A	-	-	-	-	-
32.2. Describe the purpose of the following:											
32.2.1. OPLAN communications requirements.	7					-	-	-	-	-	-
32.2.2. Time Phased Force Deployment Data (TPFDD).	7					-	-	-	-	-	-
32.2.3. Status Of Resources and Training Systems (SORTS).	7					-	-	-	-	-	-
32.2.4. AEF Reporting Tool (ART).	7					-	-	-	-	-	-
32.2.5. UTC development process.	7					-	-	-	-	-	-
32.2.6. UTC adjustment procedures.	7					-	-	-	-	-	-
32.2.7. Initial Support Element (ISE):											
32.2.7.1. Advanced Echelon (ADVON).	7					-	-	-	-	-	-
32.2.7.2. Main Base.	7					-	-	-	-	-	-
32.2.7.3. Bare Base.	7					-	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
32.3. Deployment Procedures: TR: AFIs 10-403, 13-216, 21-109, 33-201, 33-211 and; AFMAN 23-110											
32.3.1. Develop load plan.	7*					-	-	-	-	-	-
32.3.2. Explain pallet build-up procedures.	7*					-	-	-	-	-	-
32.3.3. Explain hazardous cargo preparation.	7*					-	-	-	-	-	-
32.3.4. Prepare documentation.	7*					-	-	-	-	-	-
32.3.5. Determine site selection requirements.	7*					-	-	-	-	-	-
32.3.6. Determine site preparation requirements.	7*					-	-	-	-	-	-
32.3.7. Determine site configuration requirements.	7*					-	-	-	-	-	-
32.3.8. Determine requirements for constructing deployment site utility grids.	7*					-	-	-	-	-	-
32.3.9. Describe control of COMSEC material.	7*					-	-	-	-	-	-
32.4. Surface and air transport.	7*					-	-	-	-	-	-
33. FACILITY MANAGEMENT. T0 31-10-24, AFI 13-216, 13-218, 32-1065, 21-116 ATTCH 11, AFCEMI 300-7, TO 00-25-108											
33.1. C-E Facility Management areas:											
33.1.1. Grounding.	7					-	-	-	-	-	-
33.1.2. Lightning Protection.	7					-	-	-	-	-	-
33.1.3. Certification (ATC).	7*					-	-	-	-	-	-
33.1.4. Antenna PMI Procedures.	7*					-	-	-	-	-	-
33.1.5. Mobile Depot Maintenance.	7*					-	-	-	-	-	-
33.1.6. RF Radiation Surveys.	7*					-	-	-	-	-	-
33.1.7. Air Traffic Systems Evaluation Program (ATSEP).	7*					-	-	-	-	-	-
33.1.8. ATCALS evaluation.	7					-	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
34. SYSTEM PLANNING AND IMPLEMENTATION. TR: AFI 33-104 and AFI 21-404; TO 32-series; AFQTP 2EXXX-202B											
34.1. Identify systems support requirements for new or modified systems.	7					-	-	-	-	-	-
34.2. Describe how to manage planning and implementation of new systems.	7					-	-	-	-	-	-
35. WORKCENTER MANAGEMENT.											
35.1. Work center management principles. TR: AFQTP 2EXXX-201L											
35.1.1. Principles of management.	7					-	-	-	-	-	-
35.1.2. Training.	7					-	-	-	-	-	-
35.1.3. Supply.	7					-	-	-	-	-	-
35.1.4. Core Automated Maintenance System (CAMS).	7					-	-	-	-	-	-
35.1.5. Work center management.	7					-	-	-	-	-	-
35.1.6. Safety and security.	7					-	-	-	-	-	-
35.1.7. Maintenance standards.	7					-	-	-	-	-	-
35.1.8. Performance reports.	7					-	-	-	-	-	-
35.1.9. Awards and recognition.	7					-	-	-	-	-	-
35.1.10. Mobility/deployment.	7					-	-	-	-	-	-
35.1.11. Manpower.	7					-	-	-	-	-	-
35.1.12. Financial management.	7					-	-	-	-	-	-
36. COMMUNICATIONS-ELECTRONICS MANAGEMENT.											
36.1. AFQTP 2EXXX-201LB, Communications-Electronic (C-E) Manager's Handbook.	7*					-	-	-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
200. AIR FORCE JOB QUALIFICATION STANDARDS APPLICABLE TO AFSC 2E051. TR: AFI 21-116, 36-2233, CFETP 2E0X1 (See Notes 3 and 4)											
200.2. AFJQS 2EXXX-200B, 2EXXX C-E Enlisted Specialty Training. (See Note 2)	5										
200.4. AFJQS XXXXX-200D, Integrated Maintenance Data System Handbook.	5*										
201.3. AFJQS 2EXXX-201C, Corrosion Prevention and Control.	5										
201.5. AFJQS 2EXXX-201EA, Core Automated Maintenance System (CAMS) with GUI.	5*										
201.6. AFJQS 2EXXX-201F, Maintenance Control.	5*										
201.7. AFJQS 2EXXX-201G, Quality Assurance.	5*										
201.8. AFJQS 2EXXX-201H, Work Center Deficiency/Discrepancy Reporting.	5*										
201.10. AFJQS 2EXXX-201J, Maintenance Training Program.	5*										
201.16. AFJQS 2EXXX-201P, Work Center Test Equipment Management.	5*										
201.24. AFJQS 2EXXX-201X, Engineering Installation (EI) Quality Assurance.	5*										
202.1. AFQTP 2EXXX-202A, Electrostatic Discharge Handbook.	5*										
202.4. AFQTP 2EXXX-202D, EI Tempest Installation Handbook.	5*										
202.24.2. AFJQS 2E0X1-202XB, WSR-88D NEXRAD Radar Product Generation.	5*										

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
202.24.4. AFJQS 2E0X1-202XD, WSR-88D NEXRAD Open Radar Data Acquisition Group (ORDA)	5*										
202.24.5. AFJQS 2E0X1-202XE, WSR-88D Next Generation Radar Transmitter System	5*										
203.1. AFJQS 2E0X1-203A, AN/GPA-134, Video Map Generator System.	5*										
203.2. AFJQS 2E0X1-203B, AN/GPN-30, Digital Airport Surveillance Radar	5*										
203.3. AFJQS 2E0X1-203C, Standard Terminal Automation Replacement System (STARS)	5*										
203.12.1. AFJQS 2E0X1-203LA, AN/GPN-22 System Level Maintenance.	5*										
203.12.2. AFJQS 2E0X1-203LB, AN/TPX-42 Interrogator.	5*										
203.14.2. AFJQS 2E0X1-203NB, AN/GPN-20 Transmitter System.	5*										
203.14.3. AFJQS 2E0X1-203NC, AN/GPN-20 Receiver System.	5*										
203.14.4. AFJQS 2E0X1-203ND, AN/GPN-20 Processor System.	5*										
203.14.5. AFJQS 2E0X1-203NE, AN/GPN-20 Antenna and Auxiliary Equipment.	5*										
203.14.6. AFJQS 2E0X1-203NF, Air Traffic Control (ATC) Indicators.	5*										
203.19. AFJQS 2E0X1-203S, Digital Bright Radar Tower Equipment (DBRITE).	5*										
207.1. AFJQS 2E0X1-207A, AN/MST-T1A MUTES. NOTE: Assigned personnel must be qualified on one transmitter type for 5-level upgrade.	5*										

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. OJT				4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
207.2. AFJQS 2E0X1-207B, AN/MST-T1(V) Mini-MUTES. NOTE: Assigned personnel must be qualified on one transmitter type for 5-level upgrade.	5*										
207.3. AFJQS 2E0X1-207C, Advance Radar Principles.	5*										
207.4. AFJQS 2E0X1-207D, AN/VPQ-1 Tactical Radar Threat Generator.	5*										
207.5. AFJQS 2E0X1-207E, AN/MPQ-T3 AAA Radar Simulator.	5*										
207.9. AFJQS 2E0X1-207I, AN/MSQ-T43 (V)1 and (V)4 Modular Threat Emitter (MTE).	5*										
209.3. AFJQS2EXXX-209C, 6KNZF: C-E Airfield and Weather Systems Support.	5*										
211.7. AFJQS 2E0X1-211G, AN/MPN-14K Landing Control Central.	5*										
211.16. AFJQS2E0X1-211P, AN/TPS-75 Mobile Radar.	5*										
211.16.4. AFJQS 2E0X1-211PD, AN/UYQ-27 Situation Display Console.	5*										
211.16.6. AFJQS 2E0X1-211PF, AN/UPX-27 Interrogator Set.	5*										
211.16.7. AFJQS 2E0X1-211PG, AN/UPA-59 Decoder Group.	5*										
211.16.8. AFJQS 2E0X1-211PH, AN/UPX-37 Digital Interrogator.	5*										
211.17. AFQTP 2E0X1-211Q, AN/TPN-19 Landing Control Central.	5*										

Section B - Course Objective List

4. This section not used.

Section C - Support Materials

5. The following is a list of available support materials.

5.1. **Computer Based Training Products.** Air Force computer based training products can be found at https://www.my.af.mil. (Under IT E-Learning)

5.2. **Air Force Job Qualification Standards and Air Force Qualification Training Packages.** Refer to http://www.e-publishing.af.mil/, product announcements, for the list of published AFJQSs/AFQTPs.

5.2.1. A list of applicable AFJQs\AFQTPs for AFSC 2E0X1 and additional AFJQS/AFQTP pertaining to maintenance management and generic training products can be found at https://wwwmil.keesler.af.mil/81trss/qflight/index.htm

5.2.2. For information on how to request development of AFJQSs/AFQTPs refer to AFI 36-2233, *Air Force On-the-Job Training Products for Communications-Electronics Enlisted Specialty Training.*

5.2.3. Additional AFJQS/AFQTP maintenance management and generic training products applicable to this specialty.

Publication No.	Pseudo Code	Publication Title
AFJQS 2EXXX-200B	2EXXX-200.2	2EXXX C-E Enlisted Specialty Training
AFJQS XXXXX-200D	2EXXX-200.4	Integrated Maintenance Data System Handbook
AFJQS 2EXXX-201C	2EXXX-201.3	Corrosion Prevention and Control
AFQTP 2EXXX-201EA	2EXXX-200.5.1.	Core Automated Maintenance System with GUI
AFJQS 2EXXX-201F	2EXXX-201.6	Maintenance Control
AFJQS 2EXXX-201G	2EXXX-201.7	Quality Assurance
AFJQS 2EXXX-201H	2EXXX-201.8	Work Center Deficiency/Discrepancy Reporting
AFJQS 2EXXX-201J	2EXXX-201.10	Maintenance Training Program
AFQTP 2EXXX-201L	2EXXX-201.12	Communications-Electronics (C-E) Work Center Manager's Handbook
AFQTP 2EXXX-201LB	2EXXX-201.12.2	Communications-Electronic (C-E) Manager's Handbook
AFJQS 2EXXX-201P	2EXXX-201.16	Work Center Test Equipment Management
AFJQS 2EXXX-201X	2EXXX-201.24	Engineering Installation (EI) Quality Assurance
AFQTP 2EXXX-202A	2EXXX-202.1	Electrostatic Discharge Familiarization Handbook
AFQTP 2EXXX-202D	2EXXX-202.4	EI Tempest Installation Handbook
AFJQS XXXXX-208A	XXXXX-208.1	Ultra High Frequency Demand Assigned Multiple Access Familiarization
AFJQS 2EXXX-209C	2EXXX-209.3	6KNZF: C-E Airfield and Weather Systems Support
AFJQS 2EXXX-209D	2EXXX-209.4	6KNZE: C-E SATCOM /Wideband Augmentation
AFJQS 2EXXX-209L	2EXXX-209.12	6KNZL: C-E METNAV Operations Maintenance
AFJQS 2EXXX-209P	2EXXX-209.16	6KNZG: C-E C-2 Radio System Support
AFJQS 2EXXX-209Q	2EXXX-209.17	6KNZN: C-E Personal Wireless Communications (PCWS) Systems Support
AFJQS XXXXX-211N	XXXXX-211.14	Installation Spectrum Management
AFQTP XXXXX-212C	XXXXX-212.3	C4 Information Systems Familiarization Handbook
AFJQS XXXXX-212M	XXXXX-212.13	MILSTAR Terminal Operations
AFJQS XXXXX-212N	XXXXX-212.14	Tactical Antennas
AFJQS XXXXX-212Z	XXXXX-212.26	Global Broadcast Service Ground Receive Suite
AFQTP XXXXX-213T	XXXXX-213.20	Career Field Managers Handbook
AFJQS XXXXX-230RB	XXXXX-230.18.2	Theater Deployable Communication Integrated Communications Access Package Voice Network
AFJQS XXXXX-230RC	XXXXX-230.18.3	Theater Deployable Communication Integrated

Publication No.	Pseudo Code	Publication Title
		Communications Access Package Data Network
AFJQS XXXXX-230RD	XXXXX-230.18.4	Theater Deployable Communication Integrated Communications Access Package Transmission
AFJQS XXXXX-230RE	XXXXX-230.18.5	Theater Deployable Communication Integrated Communications Access Package Message Network

Section D - Training Course Index

6. The following is a list of the available Air Force in-residence, field, and/or exportable training courses.

6.1. **Air Force In-Residence Courses.** For information on all formal courses, refer to the Air Force Education and Training Course Announcements (ETCA) database, formerly AFCAT 36-2223, USAF Formal Schools Catalog at https://my.af.mil/.

Course Number	Course Title	Location
E3ABR2E031 01WC	Ground Radar Systems Apprentice	Keesler
E3AZR2E051 03DA	Digital Airport Surveillance Radar (DASR) Maintenance	Keesler
E3AZR2E051 03SA	Standard Terminal Automation Replacement System (STARS) Maintenance	Keesler
E3AZR2E051 03NB	WSR-88D Weather Radar Maintenance	Keesler
E3AZR2E051 03UA	Ground Radar Unix and Networking Course	Keesler

Section E - MAJCOM Unique Requirements

7. Current MAJCOM unique requirements.

AN/GPN-22 Consolidated Hands On Training Course	Tobyhanna Army Depot	POC: Mr. Ryan Ritchie DSN 574-5374